

How Europe Copes with Terror

Page 68

Disaster recovery specialist Keith Ford was in London when a bomb detonated outside his Citibank office.



FEBRUARY 15, 2002 • \$9.00

CIO.COM



The Magazine for Information Executives

ALSO INSIDE

Wireless
Challenges
Overcome

Page 60

Personalization
Done Right

Page 76

The ROI of SECURITY

MICHAEL YOUNG,
CISO, STATE STREET
GLOBAL ADVISORS

He wants numbers—
we got numbers.

NO MORE FOOLING AROUND

New Metrics
Real Returns
Proof You Can Use

Page 42

PLUS Sales-Force Automation Success Page 54



The goal? Create a system that allows 5,000 insurance field reps to connect with headquarters from 5,000 different locations. Here's the catch—the locations change every single day.

CAN I REACH 5,000 INSURANCE

AMERICAN GENERAL
AND
FUJITSU
MOBILE COMPUTING
SOLUTIONS

BETTER MOBILITY. That's what American General Life & Accident Insurance Company, a member of American International Group, Inc., knew its sales team needed to streamline the sales process and enhance customer service. Working closely with Fujitsu, American General now uses a pen tablet-based system that gives field reps greater mobility and allows them to send and receive data from wherever they are to the home office each day. Payment collection, account maintenance, and even retrieval of new policy information are all now done remotely and with less paper. Get the rest of the story at us.fujitsu.com/casestudy/. When you team with a global leader in mobile computing, you can accomplish anything.



AGENTS WHEREVER WORK TAKES THEM?
I MAKE IT MY POLICY TO.

FUJITSU

THE POSSIBILITIES ARE INFINITE

www.fujitsu.com



WARNING

THIS FACILITY IS
SUBJECT TO
SUDDEN SHIFTS
IN SCALE.

When you think scalability, it's time to think software.

Today's Web-driven world demands a faster way to scale up and out. But instead of thinking hardware, it's time to think smarter software, as in the modular and scalable Microsoft® server platform.

THINK UPTIME "Microsoft provides scalable and reliable products at an unbeatable price with the ability to scale out, not just up. As a result we are able to add new servers without costly downtime." — Don Heckman, VP, Engineering Program Management, Qwest

The Microsoft server platform gives you the choice of thinking bigger, smaller, up, or out. That way you can deploy Microsoft SQL Server™ 2000 on Windows® 2000 Datacenter Server for heavy-duty ERP and transaction processing, and scale up to support terabytes of data and millions of transactions. Or scale out with Microsoft Application Center 2000 by adding clusters of Windows 2000-based



servers running distributed applications. Which means that it also has the lowest price-to-performance ratio of any competitive platform.*

So no matter how quickly things change, your business is always perfectly scaled to handle it. For more ways to scale with software, visit us at **microsoft.com/servers/scalability** **Software for the Agile Business.**

Microsoft®



You shouldn't have to adapt your company to fit some imposing enterprise software design. At Lawson, we create software solutions for specific industries. Our industry experts make sure of it. The result is proven software that works for you. With deeper functionality. Fast, seamless



One size does not fit all.



implementation. Rapid return on investment. Lower total cost of ownership. And experienced consulting and support teams to meet your ongoing needs. Which explains why many of our customers are industry leaders. Details await at www.lawson.com/truck7 or call 1-800-477-1357.



VOL. 15 • NO. 9 • FEBRUARY 15, 2002

Cover Story

SECURITY ROI | 42

Finally, a Real Return on Security Spending

For years CIOs have had to use scare tactics and other soft arguments to justify an investment in security. Now, for the first time, they may be able to get numbers they need to show a measurable ROI.

By Scott Berinato

COVER PHOTO BY FURNALD/GRAY

42

Michael Young, State Street Global Advisors' chief information security officer, bemoans the lack of quantifiable values for security staff. But things are looking up.

Features

CASE FILES | RELATIONSHIP MANAGEMENT Smooth Selling Ahead | 54

Empire Blue Cross and Blue Shield slashed its sales cycle from 27 days to just two or three with the help of sales-force automation software. *By Simone Kaplan*

WIRELESS Wireless That Works | 60

How five companies jumped five hurdles of wireless technology: budgetary constraints, security, bandwidth, scalability and resistance to change. *By Danielle Dunne*

SECURITY PLANNING Living with Terror | 68

When it comes to dealing with terrorism, American companies have a lot to learn from European businesses. *By Malcolm Wheatley*

PERSONALIZATION Getting to Know You | 76

A guide to Personalization 101, brought to you by three companies that are doing it right. *By Meridith Levinson*

MORE ►►►



A mural reflects the sectarian struggles in Northern Ireland. See how your European counterparts plan for terrorism and disasters. 68

INTRODUCING A WHOLE NEW WAY TO LOOK AT STORAGE MANAGEMENT.

BrightStor™ Storage Management Solutions

For years, storage management has been an ever-increasing cost, not a source of potential opportunity. But that's all about to change. Because we've created BrightStor, the most comprehensive suite of end-to-end storage management solutions on the market. BrightStor lets you leverage your resources and data across your entire enterprise, regardless of platform or protocol. In fact, BrightStor is the only suite of solutions that supports all three industry models — DAS, NAS and SAN — cross-platform. Which means you can look at your eBusiness needs as a whole, not piece by piece. So you can optimize your resources across your entire storage infrastructure. And, most importantly, you can do more than just store information. You can actually use it.



Computer Associates™

HELLO TOMORROW | WE ARE COMPUTER ASSOCIATES | THE SOFTWARE THAT MANAGES eBUSINESS™

ca.com/storage

©2001 Computer Associates International, Inc. (CAI). All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

When not to be the Lone Ranger®



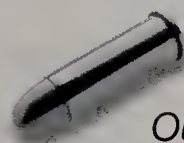
When your company's information availability is riding on you.

Access to critical business information. It can disappear faster than you can say Hi Yo, Silver!™ With the SunGard Availability Services net beneath you, your access to your critical business information is there, without fail. More than 5,000 companies rely on our affordable, responsive services, 24/7/365.

Get the net beneath you:

**INFORMATION AVAILABILITY
MANAGED HOSTING
CONSULTING**

Don't go it alone. Get the people and technology of the SunGard net beneath you. We're ready to ride. Learn more at: www.sungard.com/availability



*Now, Comdisco® Continuity Services
is part of SunGard's net beneath you.*

*Our combined synergies offer you the broadest
range of high availability options, unparalleled depth
of technical expertise, as well as more redundant
facilities, equipment and networks across North
America and Europe.*

SUNGARD®
Availability Services

The Net Beneath You

Columns

KEYNOTE

Go Slowly with Web Services | 36

To reap the benefits of Web services technology, keep it simple and take an incremental approach.

By John Hagel, John Seely Brown and Dennis Layton-Rodin

Sections

TRENDLINES | 26

Speed trap—beware of your rental car; Auction sites offer IT bargains; New links in the supply chain. *And more*

WASHINGTON WATCH | 28

The fight against cybercrime goes global.

OFF THE SHELF | 32

Business @ the Speed of Stupid and *Will and Vision*; CIO best-seller list

EMERGING TECHNOLOGY | 84

Fixed wireless can provide an affordable option, but don't forget to factor in Mother Nature. *By Ben Worthen*

COMPANIES TO WATCH | 88

FileMaker goes corporate.

UNDER DEVELOPMENT | 90

Fiber to the Processor is one company's dream. Will it work?

EMERGING TECHNOLOGY | 84

The Last Mile—Wireless Style

It's called fixed wireless. It's cheaper than putting a T1 or fiber-optic cable in the ground, works just about as well and costs a lot less. So how come not everyone is signing up?

By Ben Worthen



REVISIT | 92

Border crossing—IT plays a big role in export management.

PREDICTIONS | 92

IT leadership in the down economy.

OPINION | 99

REALITY BYTES

Voice over IP sounds like a good idea until you ask—and answer—the hard questions.

By Chuck Papageorgiou

RE: | 102

A new European cybercrime treaty doesn't silence concerns about privacy, free speech and e-commerce. *By Bill Wall*

Playing IT politics—how to evaluate the landscape in your company.

By Jim Prebil and Tom Colbert

In Every Issue

FROM THE EDITOR | 18

Response Ability

How do you respond to a computer security incident? *By Abbie Lundberg*

INBOX | 20

Reader feedback

INDEX | 108

EXECUTIVE SUMMARY | 110

Check out the bite-size summaries of all the feature stories found in this issue.



“We had 33 redundancy audit checks—where we go over information to make sure it's correct. We had created this nightmare.”

—Stephen Bell, VP of e-business operations at Empire Blue Cross and Blue Shield, on their sales and enrollment processes 54



Sun™ ONE. The software platform that will unleash the untapped horsepower of your IT infrastructure.

What's the value of integrating your information assets? That's an easy one. More services, bigger savings, greater profits, right? You'll get better customer service, tighter supply chains and achieve increased productivity. Sounds great, so how do you do it? With Web Services? How do you wrangle those resources together without ripping out and replacing everything? Or without a massive development project? Or without crushing your bottom line? Oh yeah, and how do you make it future-proof, adaptable to whatever platforms, technologies or thingamabobs show up tomorrow? Sun™ ONE is the answer.

IT'S THE FUEL-INJECTED JAVA™ AND XML SOFTWARE PLATFORM.

Sun ONE is a software platform of rock-solid products that lets you integrate whatever services you demand. And you can leverage the power of your legacy systems to launch services today without locking you into a dead-end solution tomorrow. Sun ONE includes the iPlanet™ product portfolio, with the most popular LDAP directory server on the market, and Forte™ for Java™ tools, the quickest way to write Java apps anywhere. And it's all built with Java and XML technologies, supports SOAP, WSDL and UDDI, and runs on Solaris™, the #1 UNIX® operating environment.

Visit www.sun.com/sunoneinfo to register to receive the Sun ONE starter kit and join the online Sun ONE community.

take it to the nth



(± \$250 ticket)



LOUDCLOUD (±0)

The world is unpredictable. Your Internet operations shouldn't be. Our advanced Opsware automation technology can help your business save money, reduce downtime, and deploy web content faster than ever.

To find out how Loudcloud's automation technology can streamline your Internet operations, read our white paper at www.loudcloud.com/cio or call 866-259-1550.



LOUDCLOUD™
Seriously Reliable Internet Operations™

GIVE US THIS DAY: OUR DAILY WEB

DAILY In the News Web Editor Ryan Mulcahy analyzes and condenses need-to-know business news. www.cio.com

MONDAY Tech Tact: New Tools for New Jobs Technology Editor Christopher Lindquist on what's coming and what it's good for. www.cio.com/techtact



HELLER

TUESDAY CIO Radio Listen in as Web Writer Danielle Dunne talks with notable, quotable experts on critical IT issues. www.cio.com/radio

WEDNESDAY Metrics Web Writer Jon Surmacz finds the industry numbers that matter from the country's most reputable analysts. www.cio.com/metrics

THURSDAY Sound Off For opinions on managerial, political and ethical dilemmas that confront CIOs daily, read the column that takes a stand. Written by Executive Web Editor Martha Heller and others. comment.cio.com

FRIDAY The 35 Cent Consultant Questions about strategy? Staffing? Integration? Executive Editor Derek Slater gives readers advice that's worth every penny. www.cio.com/35cent

EXECUTIVE RESOURCES

Informative Newsletters

Sign up for one of CIO's e-mailed newsletters to stay on top of management issues, XSP trends, enterprise solutions—even what's new on the site. www.cio.com

CIO Research Reports

Your peers have weighed in on such subjects as user support and IT disaster preparedness. This month, read the results of our latest staffing survey, the third in a series started in November 2000. We gauge such trends as turnover rates and support-staff-to-user ratios. Check out what other CIOs had to say, and find out where you stand. www2.cio.com/research

CIO READER POLL

Are Web services ready for prime time?

John Hagel, John Seely Brown and Dennis Layton-Rodin tell us what they think in this issue's **Keynote column** "Go Slowly with Web Services" (Page 36). Go to CIO.com to tell us what you think.



John Halamka, CIO, CareGroup Systems

WEB CONNECTIONS

ASK THE SOURCE Wireless and security

John Halamka, CIO of CareGroup Systems, successfully secured Beth Israel Deaconess Medical Center's wireless LAN (see "Wireless That Works," Page 60). Now he's working out the problems of integrating PalmPilots into the system. For the next two weeks, find out what he knows as he answers your questions online about wireless security.

TALK BACK Will ROSI formulas work for your company?

Researchers and academics have come up with hard numbers to prove ROSI, the ROI of security investments (see "Finally, a Real Return on Security Spending," Page 42). Do you foresee being able to plug these formulas into your calculations? Are you under the gun to prove ROI before you can invest in security? Give us your opinion.

LEARN MORE Life during wartime

Jan Popkin knows all about living with terrorism (see "Living with Terror," Page 68). His enterprise software modeling company is split between offices in Manhattan—near the site of the World Trade Center—and England. Terrorist attacks have taught him to devise strategies for staying in touch with employees. Go online to read his story.

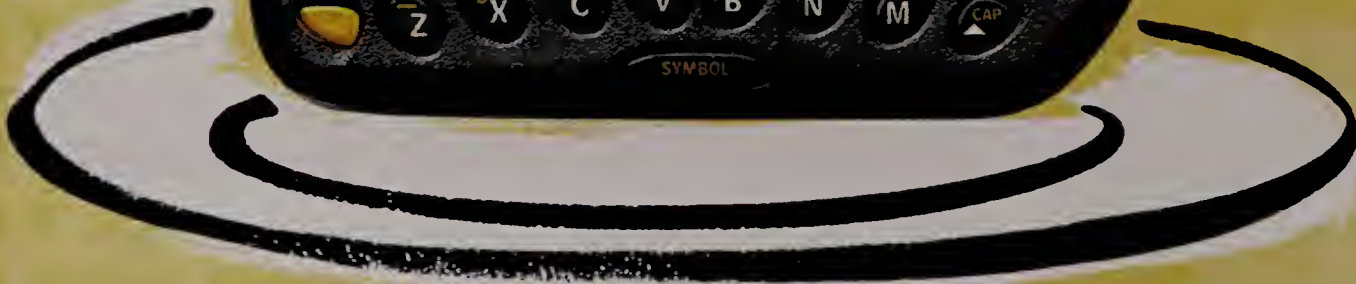
Find the links to these and other resources in the **WEB CONNECTIONS** box at www.cio.com.

Make Microsoft Email Unbreakable

**Run Microsoft Outlook email
on Oracle Database Clusters.
Can't break it. Can't break in.**

ORACLE®

**oracle.com/email
or call 1.800.633.1062**



© 2000-2001 Research In Motion Limited (RIM). All rights reserved.
BlackBerry is an end-to-end wireless email solution developed
by RIM. BlackBerry, the BlackBerry logo, the "envelope in motion"
symbol, RIM, the RIM Wireless Handheld family of marks and
the RIM logo are trademarks or registered trademarks of RIM.

Wireless email that means business.

BERRY ALERT.



Give your organization the jolt it needs to stay ahead of the competition. Get BlackBerry™ — it's wireless email for the enterprise. So your team can communicate wherever they go — and you can relax knowing that BlackBerry is engineered to meet your strict security standards. In fact, with end-to-end Triple DES encryption technology, BlackBerry allows for the authentication, integrity and confidentiality of all incoming and outgoing messages. BlackBerry is the only complete solution that includes powerful wireless handhelds, enterprise server software and nationwide coverage. You might say it's wireless email that fuels your business day.

WWW.BLACKBERRY.NET

INFO@BLACKBERRY.NET


BLACKBERRY
WIRELESS EMAIL SOLUTION

From the Editor

lundberg@cio.com



For a copy of the "CIO Cyberthreat Response & Reporting Guidelines"—which includes Who to Call in Law Enforcement; a list of Reporting Bodies & Resources for Incident Response; contact information for FBI and U.S. Secret Service Field Offices; and a standard, first-alert Report Form—go to www.cio.com/research/security/response.

Response Ability

CIOs ARE OFTEN EXHORTED—by this publication as well as by law enforcement groups—to report network security breaches. Many organizations are reluctant to do so, for a whole host of reasons. But in the months since Sept. 11, I've come to realize that reluctance is not the only barrier to effective response and reporting. Many executives simply don't understand how to respond to a computer security incident, who to contact in the event of an incursion or what to tell them. That prompted me to launch an initiative to develop "Cyberthreat Response & Reporting Guidelines."

An organization must respond in some way to a computer security breach; the better prepared it is to respond quickly and effectively, the better chance it will have to minimize the damage. These guidelines, developed in collaboration with industry professionals and law enforcement, are intended to provide a framework for developing a cyberthreat response and reporting capability.

The initiative has a modest goal. We restricted our recommendations to reporting incidents that are an attack on information systems or data (computer and/or Internet security). We did not attempt to address other types of cybercrime such as Internet fraud or pornography.

Creating and maintaining a secure information environment is difficult, expensive and complicated. Incident response is itself a complex subject, includ-

ing the sometimes difficult decision of whether to share any information at all. There are excellent resources available to help CIOs and chief information security officers (CISOs) understand and address these challenges; you'll find some of them listed as part of the guidelines under "Resources" at www.cio.com/research/security/response.

We believe that reporting cybercrime and network attacks is the right thing to do. Only by sharing information with law enforcement and appropriate industry groups will we be able to prosecute cybercriminals, identify new cybersecurity threats, and prevent attacks on our critical infrastructures and our economy. Law enforcement's ability to identify coordinated efforts by cybercriminals is directly tied to the amount of reporting that takes place.

You may be reluctant to share information regarding the impact to your business and the sensitivity of the data involved in a security breach. While I won't try to make the case for trusting specific agencies or organizations, I will encourage you to learn more about how they handle sensitive information.

My sincere thanks to the CIOs, CISOs and representatives from law enforcement who devoted time and attention to this effort (a list of contributors is included in the guidelines). During this period, they certainly had other urgent demands on their attention.

Allie Lundberg

PHOTO BY JASON GROW/SABA

Now that NTT Communications has joined forces with Verio, there's a solutions provider with the power to meet your Internet needs end-to-end and top-to-bottom.

As NTT/VERIO, we operate a global Tier 1 IP network with an industry-leading SLA. We offer seamlessly integrated IP solutions, from maximally-secure VPNs and fail-safe hosting to consultation and 24/7 maintenance. Our one-stop solutions also cover ATM and Frame Relay, supplied through our Arcstar global managed data network services.

Just as importantly, we have the breadth of experience and the deep financial resources that are your best assurance we'll be there to support you for a long time to come.

www.ntt.com/verio

For further information, contact :
NTT Communications Corporation,
nttverio@ntt.com

You want to go farther.
You need an IP solutions provider
that can go the distance.

GLOBAL SLA

GLOBAL IP NETWORK

DATA CENTER

GLOBAL SERVER LOAD BALANCING
(Smart Content Delivery)

IP-VPN
(IP Sec Type; Global IP
Security Gateway Service)
(Multi-protocol label
switching (MPLS) Type)

JAPAN

ASIA

EUROPE

AMERICAS

NTT/VERIO

NTT Communications Group Offices

Japan • USA • Brazil • UK • France • Germany • Netherlands • Belgium • Switzerland • Italy • Spain • Korea • China
• Hong Kong • Taiwan • Vietnam • Thailand • Indonesia • Singapore • Malaysia • Philippines • Sri Lanka • Australia

* A full service offering may not be available in some areas.

InBox

Reader Feedback

NO ONE WANTS TO WASTE MONEY

I am a software engineer with more than 20 years of experience, and I read your article ["Let's Stop Spending \$78 Billion a Year," Oct. 15, 2001] with interest. I have been saying exactly the same thing for years, although it comes as no surprise to learn that my employers have so far ignored me.

I would like to draw your attention to a possible downside to some of the solutions in your article—a downside that I saw in operation twice during the 1990s.

In your article, various people talk about effectively paying by installment based on quality and performance, or renting software, or other forms of withholding payment until satisfied. There is an operational problem with all of these approaches, however—

the time and effort (not to mention the cost and retraining) of swapping one software product for another. And all of that presupposes that you can find a suitable replacement that contains all of the operational functionality that you are looking for—for example, that the competition has not been driven out of the market in the meantime. Many software vendors know that once a company has invested significant time, effort and resources to implement a software solution they are reluctant to change.

If a vendor can captivate a client long enough for either a change of management thinking or for the client to get the impression that the cost of changing is too great, then the vendor has achieved the same result anyway. During a period of time, the products and services will degrade until they reach the same or worse level than they currently are, and the financial costs will rise to compensate for the initial honeymoon period.

In my opinion, we should make software developers and vendors liable under international law for breaches of contract, losses due to negligence or faulty goods, and for the recall of faulty goods and the cost to fix them. Basi-



cally make software a commodity and apply a standard retail and consumer protection law to it.

Peter Stanhope
Software Engineer
Melbourne, Australia

The problem with software vendors rushing buggy products to market is ancient, but the scope of abuse has increased enormously in the past decade. As an example, Ashton-Tate grew in a flurry of impressive marketing in the early '80s. For years, the company sold "relational database products" that were unreliable and unrelational. It wasn't until DB III,

when it started selling to larger enterprises, that one major customer sued them for false advertising and products that outright didn't work. That certainly got Ashton-Tate's attention.

We need a consortium of Microsoft users to sue a company that does not even believe in trying to sell bug-free software. To quote Bill Gates, "In today's marketplace, time to market is critical. We release software quickly and fix the bugs in later releases." Having seen the same major bugs in basic functions in release after release, I no longer wonder if Microsoft cares about the quality of its products.

The company has set a new low among manufacturers for expectation of quality. Many of the jokes comparing its products to GM products are funny because they are true. But is it funny anymore? Many studies have concluded that Microsoft has cost the United States and world economies hundreds of billions of dollars in lost productivity. When will we lose our fascination with antiquated GUI not even invented by Microsoft? Until that company is put in its rightful place, true innovation in the world of PC and telecom devices will not proceed.

Paul Tiffany
CEO
HelpTeam
Tarzana, Calif.
ptiffany@helpteam.net

WHAT DO YOU THINK?

Send your thoughts and feedback to letters@cio.com. Letters may be edited for length or clarity.

One inspired person can make a difference. 460,000 can change the world.

Every day, Siemens employees change the way people live. We create new solutions, ask questions others would never have thought to ask and redefine entire industries from healthcare to energy to transportation. We're able to do this because we bring together extraordinary resources, people and ideas. Siemens is a global network of companies with operations in virtually every country, all with one goal in mind: to make life better. When you have 460,000 minds working together around the world, including 85,000 right here in the U.S., innovative solutions emerge. And that's what it takes to change the world.



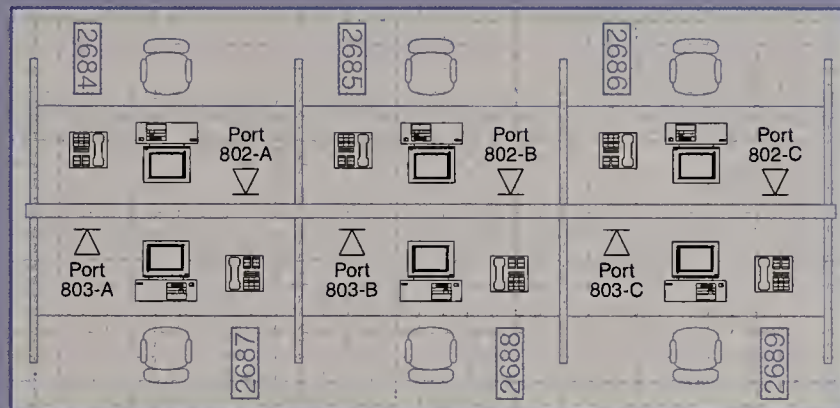
SIEMENS

Global network of innovation

Siemens Corporation 2001



See what I'm saying?



Getting a 19th-century building ready for 21st-century business is no small feat.

Microsoft® Visio® 2002 can help you get up for the task at hand. Create crystal-clear network and telecommunications schematics, space plans, even detailed HVAC layouts, to quickly communicate just what goes where, when, and how. And with the flexibility to save Visio diagrams as Web pages or to use them in Microsoft Office documents and e-mail, you can make sure everyone sees a job well done. **To give it a try, visit getvisio2002.com or go to Internet Keyword: Microsoft Visio. Software for the Agile Business.**

Microsoft®



The Magazine for Information Executives

President & CEO Joseph L. Levy

Publisher Gary J. Beach

Editorial Director Lew McCreary

EDITORIAL

Editor in Chief Abbie Lundberg

Deputy Editor Richard Pastore

Managing Editor David Rosenbaum

Managing Editor, Production Cheryl R. Asselin

Executive Editors Tom Field (Editorial and Community Development), Michael Goldberg, Christopher Koch (Investigations), Derek Slater

Columns Editor Katherine Noyes, **Departments Editor** Sandy Kendall, **Leadership and Management Editor** Edward Prewitt, **Opinion and Knowledge Management Editor** Megan Santosus, **Research Editor** Lorraine Cosgrove Ware, **Special Projects Editor** Mindy Blodgett, **Technology Editor** Christopher Lindquist

Senior Editors Alison Bass, Elana Varon (B2B E-Commerce)

Features Editors Lafe Low, Sara Shay

Senior Writers Scott Berinato, Eric Berkman, Meridith Levinson (B2C E-Commerce), Stephanie Overby, Susannah Patton (B2C E-Commerce), Sarah D. Scalet (Security and Privacy)

Staff Writers Simone Kaplan, Ben Worthen

Copy Chief Tom Wailgum

Asst. Managing Editor, Production Kathleen S. Carr

Copy Editors Kelli A. Gauthier (Assoc.), Emily S. Henderson, Sarah Johnson (Assoc.), Penny Sloane (Sr.)

Research Manager Lynne Z. Rigolini

Editorial Resource Manager Carol Zarrow

Editorial Assistants Amanda Fox, Daniel J. Horgan, Joe Sullivan, Stephanie Viscasillas

Special Projects Assistant Cristina Sousa

Contributing Editor Janice Brand

Contributors John Seely Brown, Tom Colbert, John Hagel, Fred Hapgood, Dennis Layton-Rodin, Chuck Papageorgiou, Jim Prebil, Bill Wall, Malcolm Wheatley

Editorial Operations Coordinator Karen J. Zirpola

Editorial Administrative Assistant Joyce Paquette

DESIGN

Executive Director, Art and Design Mary Lester

Art Directors Hana Barker, Lisa Munroe

Associate Art Directors Owen Edwards, Andrea Healy

Senior Designers Susan W. Gilday, George Lee, Terri Mitchell, Chandra Tallman

Associate Designers Alberto Capolino, Jennifer Landry

Design Group Assistant Rachel Barnett

WEBSITE

Senior VP/General Manager, Online Tim Horgan

Web Editorial Director Art Jahnke

Executive Web Editor Martha Heller

Web Editor Ryan Mulcahy

Web Writers Danielle Dunne, Jon Surmacz

Online Technology Director Dagmar Eiben

Senior Web Developer Ellen Morey

Online Research Manager Kathleen Kotwica

Audience Development Manager Andy Burrell

Web Developers Diane Chen, Shannon Macdonald

Web Engineer Kelly Kimball

Online Content Researchers Tara Gillet-Liloia, Lisa Sydney

Web Intern Graham White

CIRCULATION

Senior VP/Circulation Carol A. Spach

Subscription Svcs. Manager Denise Perreault

Subscription Svcs. Supervisor Tina Pescaro

Circulation Assistant Lisa Byron

Circulation Assistant/Researcher Matthew Millette

PRODUCTION

VP/Manufacturing Chris Cuoco

Production Manager Lee Tuttle

Ad Production Coordinator Lisa Stevenson

EXECUTIVE PROGRAMS

Executive VP Lynda Rosenthal

Executive Assistant Susan Weidman

VP, Event Marketing Cynthia Mollus

Director, Marketing Services Shellie Rapson James
Manager, Program Operations Brian Fuce

Manager, Procurement/Tech. Planning Cynthia Laird

Managers, Program Development Sherry Keyles, Maria Power

Manager, Client Services Jeremy E. Draper

Event Development Specialist Sandra J. Hughey

Program Applications Specialists Heather Beaton (Senior), Leah Graves (Assoc.)

Senior Program Marketing Specialist Karen Peabody

Operations Coordinator Michael Barbato

Fulfillment Services Coordinators Andrea Harney, Kristine Vibert

Manager, Event Planning Amy Sanderson

MARKETING

Executive VP/Marketing Cathy O'Leary Hayes

VP/News and Information Susan Watson

Media Relations Manager Karen Fogerty

News and Information Specialist Julie Hanson

News and Information Assistant Lori Piscatelli

Marketing Research Director Bridget Cammarata

Marketing Research Manager Carolyn Johnson

Sr. Marketing Research Analyst Dylan DiGregorio

Marketing Comm. Director Sue Yanovitch

Marketing Comm. Manager Nicole Glinski Curtin

Sr. MarCom Development Specialist Kari Curto

Marketing Comm. Coordinator Sarah Crowley

ADMINISTRATION

Executive VP/Operations Walter Manninen

Executive Assistant to the President/CEO Diane Martin

Financial Manager Cynthia Petrillo

Jr. Financial Analyst Hilary Smith

Billing Administrator Joyce Gillis

Facilities Specialist John Kelley

Office Services Coordinator Mary E. Wooldridge

INFORMATION SYSTEMS

VP/CIO David Woodall

Infrastructure Manager James C. Burgoyne

User Services Manager Ron Bettencourt

Senior User Services Specialist Michael Fahlsing

System Administrator Robert Reagan

User Support Specialists Jonathan Frappier, Paul Goddard

NEW BUSINESS DEVELOPMENT

VP, Business Development & Strategic Alliances Cheryl M. Hardy

Coordinator, Business Development Kelly Gabe

HUMAN RESOURCES

VP, Human Resources Patricia Reilly

Human Resources Manager Tanya Bureau

Human Resources Representative Beth Senges

How to Reach Us

E-mail letters@cio.com

Phone 508 872-0080

Fax 508 879-7784

Address CIO Magazine, CXO Media Inc.,
492 Old Connecticut Path, P.O. Box 9208,
Framingham, MA 01701-9208

Website www.cio.com

Topic Experts www.cio.com/online_beats2.html

Subscriber Services 800 788-4605, Fax 508 879-7899,
E-mail denisep@cio.com

Rights and Permission Karen J. Zirpola • 508 935-4366,
E-mail kzirpola@cio.com



C X O M E D I A I N C .

INTERNATIONAL DATA GROUP

President & CEO Kelly Conlin

Board Chairman Patrick J. McGovern



© CXO Media Inc.

HOW DID SALESFORCE.COM ADD MORE CUSTOMERS IN THE PAST TWO YEARS THAN ANY OTHER CRM COMPANY?

Is Siebel 7.0 too Little, too Late?

...Siebel faces increasingly strong competition from ... competitors such as salesforce.com ... Siebel is known for lengthy and expensive implementations.

Hurwitz Group, Trendwatch

"Six months and half-a-million dollars later, companies that chose traditional client/server CRM vendors still had nothing to show for it. With salesforce.com, we have results."

Michael Blumenthal

Vice President and Chief Technology Officer, Essex Corporation

"With the help of salesforce.com, we are a more successful enterprise. It gives us a more coherent culture and makes us more competitive. It has been bottom-line profitable for us within six months. I just don't see how you can help but make money using this product."

Donald Putnam

Chairman, Putnam Lovell Securities

In less than two years, salesforce.com moved from start-up to number two in CRM customers served.* Where did the established CRM companies go wrong? Simple. By the time their customers bought all the hardware, installed the software, and completed customization, their businesses had changed. Given today's pressure on profits and revenues, business is moving to salesforce.com, the world's largest online customer relationship management service—including over 3,000 companies such as Adobe Systems, Autodesk, Wachovia and Siemens PT&D. See how fast your company can benefit. Call 1-800-NO-SOFTWARE, or visit www.salesforce.com and enter Promo Code Q0213 to activate your FREE 30-day test drive.

salesforce.com
#1 in Online CRM



SALES / SERVICE / MARKETING

trendlines

the **NEW** the **HOT** the **UNEXPECTED**

Edited by Lafe Low

PRIVACY

Speed Trap

By Sarah Johnson

WHILE DRIVING FROM Connecticut to Virginia in a rented van in October 2000, James Turner got busted for speeding. He wasn't pulled over and didn't receive a ticket, but his debit card was charged \$450.

While tracking Turner's travels through several states, a GPS device installed in the car recorded each time he drove more than 79 mph for at least two minutes. With each occurrence, AirIQ—a Toronto-based wireless ASP that installs and monitors the devices—sent a fax to Acme, Turner's New Haven, Conn.-based rental car company, which subsequently charged his debit card \$150. Turner claimed he hadn't seen the clause in his rental contract that said "Vehicles driven in excess of posted speed limit will be charged \$150 per occurrence. All our vehicles are GPS equipped." As a regular customer of Acme who had seen the contract before, he didn't feel a need to read it over. He went to small claims

court hoping to recoup his money.

The result has been 15 minutes of fame for Turner (including appearances on CNN, *Dateline*, *Good Morning America*, MSNBC and the *Today* show,) and a year-long case that now sits in the hands of the Connecticut Department of Consumer Protection. A simple contract dispute has

turned into a debate over what limits—if any—should be placed on the uses of GPS technology and what rights—if any—companies have to monitor their customers.

Attorney Bernadette Keyes, who represents four consumers including Turner, claims the devices are an invasion of privacy and their use violates the state's Unfair Trade Practices Act. "There's got to be full disclosure as to how this technology can be used," says Keyes. On the orders of the Department of Consumer Protection's commissioner, Acme modified its contract to make the clause about the GPS devices more explicit.

After a 1999 speeding accident raised its insurance premiums, Acme was easily won over by the promises of GPS. Whether it can continue using the devices is up to the state. Max Brunswick, Acme's attorney, says he would appeal a cease-and-desist ruling. "There's nothing unfair or deceptive about using these devices," he says.



Department of **BIG,** Scary Numbers

U.K. companies illegally trading online: **44 PERCENT.** Companies measuring e-business ROI in-house: **59 PERCENT.** IT and e-commerce projects that either fail or are completed over budget with less functionality than planned: **70 PERCENT.** Predicted B2C e-commerce revenues in the United States by 2005: **\$156 BILLION.**

Sources: London Chamber of Commerce, Jupiter Media Metrix, Standish Group, eMarketer

ILLUSTRATION BY HARRY CAMPBELL

It's not just e-Business. It's Real Business.

David Haupt
CIO
Edmunds.com



COMPANY

Edmunds – www.edmunds.com – “Where Smart Car Buyers Start®”

BEST KNOWN FOR

The most comprehensive and impartial automotive information

BUSINESS PHILOSOPHY

When you're buying a car, what you don't know can hurt you

DEFINING INTERNET MOMENT

When syndication partners increased our traffic tenfold

RESULTS

The Edmunds brand has been serving car-shoppers for more than 35 years, and Digex has been managing Edmunds.com's Web site for more than five years.

In 1994, Edmunds.com became the first company to provide consumer automotive information on the Internet by posting its vehicle pricing on an Internet Gopher site. In 2000, Edmunds became the first source of vehicle data for users of wireless Web-enabled devices. Today, hundreds of Web sites, including the world's three largest portals, use Edmunds.com's syndicated content to educate car-shoppers.

Digex provides full management of the Edmunds.com Web site so they can focus on their mission: empowering the automotive consumer.

To learn how Digex can empower your site, call **1.866.344.3997** or visit **www.digex.com/hosting**.



Managing Business on the InternetSM

Washington Watch

Edited by Elana Varon

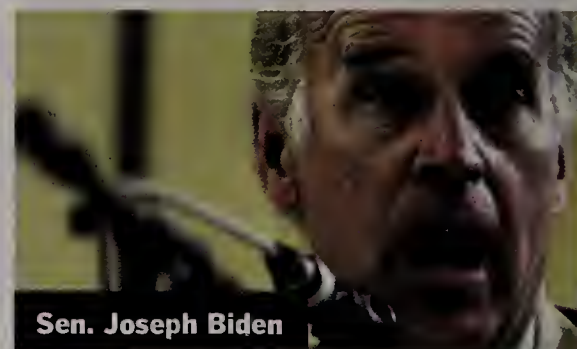
Fight Against Cybercrime Goes Global

A NEW TREATY between the United States and more than two dozen other nations will help multinational companies stop cybercriminals—but this help will come at a cost. Corporate IS departments will have to spend more money on network surveillance technology for evidence gathering and on support staff to assist foreign governments chasing international hackers. Also, the treaty does nothing to guarantee companies that any confidential data they give foreign officials in the course of an investigation will be kept private.

The Convention on Cybercrime calls for law enforcement officials in 29 participating

countries to establish uniform rules for cooperating on international cases, such as when a U.S. company's servers in another country are used to commit a crime or are hacked by an overseas criminal. Jeffrey Pryce, an attorney at Steptoe & Johnson in Washington, D.C., says that to solve such cases, law enforcement officials need help from the corporate victims.

When a company helps investigators, it can end up spending tens of thousands of dollars on tools for gathering evidence and on dedicating staff for the inquiry, says Pryce. At home, the U.S. government helps companies defray these costs, but that's not



Sen. Joseph Biden

always going to be the case when a foreign government investigates, says Bruce McConnell, president of McConnell International, a business and technology consultancy in Washington, D.C.

Also missing from the treaty is a guarantee that companies sharing information with foreign governments to solve cybercrimes will have their privacy protected, as it is in the United States. That means CIOs need to think ahead about how a foreign country's privacy laws affect how much they'll cooperate with investigations.

The U.S. Senate needs to ratify the treaty, but the Senate Foreign Relations Committee headed by **Sen. Joseph Biden (D-Del.)** had not announced any action on it at press time. However, many countries, including the United States, will start cooperating on computer crime investigations based on the treaty even before it's officially ratified, says McConnell. —Stephanie Viscasillas

Would a government-approved list of security products help you keep your systems hacker-proof? E-mail Senior Editor Elana Varon at evaron@cio.com. Editorial Assistant Stephanie Viscasillas can be reached at sviscasillas@cio.com.

Government-Approved Security



Rep. Connie Morella

UNDER A LAW passed by Congress last fall, the government will make its future reviews of information security products available to the public, and CIOs can use these assessments to make purchasing decisions.

The law, sponsored by **Rep. Connie Morella (R-Md.)**, orders the Commerce Department to set information security standards for the government's civilian agencies and list hardware and software products that meet those standards. Product tests conducted by independent labs will be rigorous, says Tony Stanco, senior policy analyst at George Washington University's Cyberspace Policy Institute, because government agencies are tired of being embarrassed by security breaches.

CIOs in the private sector have a hard time getting neutral information about the capabilities of security products because analysts and consultants haven't succeeded in deflating vendors' marketing hype. The competition for a good rating from the government will keep security vendors honest, says Stanco.

The law doesn't give the government a deadline for getting its product reviews out to the public, but an aide to Morella, who asked not to be named, expects the information to be available within six months to a year. —S.V.

It is time to update an outdated tax code to reflect the realities of today's technology-based workplace. A five-year depreciation schedule for high-tech equipment is no longer realistic.

—Rep. Jerry Weller (R-III.)

DISCIPLINE

YOUR
ENTERPRISE INCENTIVE MANAGEMENT (EIM)
PROVIDER.

Synogy has a ten-year history of successfully implementing Enterprise Incentive Management (EIM) software on time, within budget, and with consistently high client satisfaction.

Synogy has helped Sun Microsystems, GE Lighting, DuPont, Bausch & Lomb, Fleet Mortgage Group, Johnson & Johnson, Coors Brewing, Siemens, and dozens of other Global 2000 companies turn their variable pay plans from an operational hassle into a strategic advantage.

Synogy delivers "software as a service"—providing a full spectrum of EIM solutions from enterprise software to ASP to complete plan management outsourcing—all with no up-front cost to purchase software.

Visit www.synogy.com today to request free white papers and case studies. Or call us at 610-664-7433 x7970 to learn about The Synogy Guarantee and why our success has made us the largest provider of EIM software and services. We guarantee that you too will be satisfied with your Synogy EIM solution—or we'll give you your money back!

www.synogy.com

Copyright © 2001 Synogy Inc. and Masterfile. All Rights Reserved.

SYNOGY
The Incentive Compensation Company™

SECURITY

Big Brother Is Watching By Scott Berinato

TWO TRADITIONALLY DISTINCT realms of security—the physical world with guards, swipe cards and security cameras, and the virtual world dominated by firewalls, passwords and cryptography—are quickly meshing in the post-Sept. 11 environment. Expect new *Mission: Impossible*-like systems that scan retinas, but also plan on everyday technologies getting spiffed up, integrated and Web-enabled.

For example, a company called WebEyeAlert, in Chelmsford, Mass., has built software that links closed-circuit TV (CCTV) surveillance systems to the Web. WEA is a division of Biscom, a fax server company. Fax servers are built around digital imaging technology, so Biscom simply applied its patents to the world of surveillance imaging. The WebEyeAlert DVR system enhances existing CCTV by allowing anyone with properly authorized access and a browser to control the cameras—zoom, tilt,



pan and so forth—remotely from a computer. The software also recognizes movement in the picture and can send out alerts if a specified level of movement is crossed.

These systems are already being used to proactively prevent school violence. The high school in Londonderry, N.H., installed a \$77,000 WEA system with 48 cameras (and 16 more planned) in the school's common areas. Chuck Zappala, who heads the proj-

ect, can check out what's going on in the middle of the night from his home and has given specific rights to police and fire patrols to access the cameras from the outside of the building in case of fire or other emergency. Determining who will control the unified physical and virtual security is one of the remaining challenges.

Unfortunately, what prompted Zappala to buy the system was a raft of threats—eight in two weeks including some bomb threats at the school. The school shut down for two days and reopened with an atmosphere hardly conducive to learning, as police used metal detectors to conduct searches. Since the system was installed, two threats were squelched without anyone having to enter the building. "It's working incredibly well," Zappala says. "In one case we were able to dismiss the threat, and in another we located students we felt were involved." As an added boon, graffiti has all but disappeared, Zappala says.

HOT TOPIC



I.T. SPENDING

Not Just Beanie Babies By Stephanie Overby

I.T. EXECUTIVES ARE spending a lot more time on eBay these days, but they're not looking for *Laverne and Shirley* lunch boxes. In today's economic climate, CIOs looking to save money on their technology purchases are hitting the online auctioneer in search of high-end products at lower price points—and they're finding them.

Etienne Handman, CTO for E-Loan, a Dublin, Calif.-based online lending company, says he recently scored a barely used \$60,000 Sun E4500 server on eBay. His price—\$20,000. Handman's company has lowered its IT costs by 11 percent a year—in part by buying things through eBay—while revenue increased by 88 percent. "We're typically paying 25 to 30 percent of the 'new' price for essentially brand-new equipment," Handman says.

Chris Montgomery, director of IT operations for San Antonio-based consultancy Frost & Sullivan, first discovered the benefits of online bidding when his CFO suggested he

scout eBay for deals on additional air-conditioning units for his server farm. "We purchased a 14,000 BTU floor unit at an exceptional discount," Montgomery recalls.

Since then, Montgomery's department has bought a new Dell PowerVault 130T backup system on eBay. "We were able to acquire top-of-the-line equipment while replacing our legacy system at a cost savings of more than 75 percent," explains Montgomery, who is currently pricing Web servers on the auction site.

With more than 400,000 computer-related products for sale at any given point, eBay says IT executives are bidding on everything from routers to phone systems to LCD projectors. The company says more than 50 percent of the listings are actually new products and many others are still under warranty.

Before you join the bidding frenzy, take the advice of seasoned IT execs and eBay buyers: Look up the seller's history and contact him directly with any questions, check out other closed auctions for the same type of item to find out what price it might go for, and research the purchase as you would any other IT expenditure.



We take e-security further

AppGate™ VPN and VPNPowerBox™ redefine what a VPN can do by extending e-security all the way from the user to the application. You thought that a VPN had to be network device dependent? Well, the AppGate solution goes further by offering **NAT transparency**, network, firewall and router **independency**. AppGate offers user interfaces that are platform independent through a downloadable Java™ client, saving your enterprise distribution, support, and deployment costs. AppGate provides the **scalability** to an unlimited number of users and **flexibility** that you have been looking for in a VPN solution.

For more information, visit our website at www.appgate.com or give us a call at 1-866-AppGate.

appGATE™
We take e-security further

Off the Shelf

Edited by Carol Zarrow

From Stupid to Smart

Business @ the Speed of Stupid: Building Smart Companies After the Technology Shakeout
By Dan Burke and Alan Morrison



Perseus Publishing, 2001, \$26
Everyone loves a good failure story. A book full of them is even better. The consultant authors of *Business @ the Speed of Stupid* base their chapters on real-life technology endeavors that failed—though names are changed to protect the stupid. Burke and Morrison adeptly cover the major issues surrounding a good idea gone bad, focusing primarily on the myth that technology can solve every problem. Also highlighted are cases in which the people involved in implementation completely failed to communicate—which Burke and Morrison point to as one of the key factors in technology venture failures. Misalignment as a factor in failure isn't revolutionary thinking, but the authors manage to make their tales amusing and educational.

However, their own endeavor slides toward failure with the inclusion of their "always/never" tables, which offer hard and fast dos and don'ts that make the reader wonder why, if the rules for attaining success are that black and white, any company fails at all. Burke and Morrison compensate for their simplified suggestions

with anecdotes about management misunderstandings and consultant failures that any project leader could relate to and learn from. *Business @ the Speed of Stupid* is a useful guide on how to avoid falling victim to technology hype and myth.

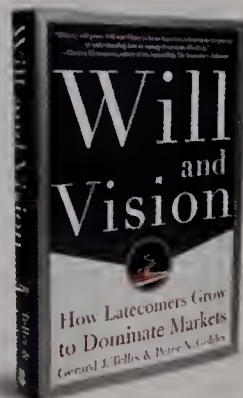
—Stephanie Viscasillas

Where There's a Will

Will and Vision: How Latecomers Grow to Dominate Markets

By Gerard J. Tellis and Peter N. Golder
McGraw-Hill, 2001, \$27.95

Although the new economy promotes the fast and furious, the authors of *Will and Vision* give the winning prize—long-term brand recognition—to the slow and steady. Companies don't have to be first; they just have to be better, hitting the market with an innovative spin. A lot of us assume that today's superbrands were the pioneers in their field, but being first with a great idea doesn't equal automatic success and endurance, the authors claim, citing their 10-year investigation of late market entrants, including Netscape's Navigator and Procter & Gamble's Pam-



pers. The writers make a convincing point, but some of their arguments come across as nitpicking—sure, King C. Gillette didn't invent the safety razor, but give the guy's company credit as the first out with a disposable version. Forget the questions the book raises, and use its case studies and chapter on finding and

CIO Best-Seller List

1. Jack: Straight from the Gut
by Jack Welch
Warner Books, 2001

2. Good to Great: Why Some Companies Make the Leap... and Others Don't
by Jim Collins
HarperCollins Publishers, 2001

3. Who Moved My Cheese? An Amazing Way to Deal with Change in Your Work and in Your Life
by Spencer Johnson
The Putnam Publishing Group, 1998

4. Fish! A Remarkable Way to Boost Morale and Improve Results
by Stephen C. Lundin, Harry Paul and John Christensen
Hyperion, 2000

5. The 7 Habits of Highly Effective People
by Stephen R. Covey
Simon & Schuster, 1990

SOURCE: DATA FROM DECEMBER 2001.
COMPILED BY AMAZON.COM. SEATTLE

committing financial resources as tips to convince the higher-ups of your next brilliant, innovative idea. —Sarah Johnson

BOOK TALK

Perhaps the central task of this century will be to create a world where we neither deny the richness of our cultural differences nor allow them to divide us. It is a daunting task, considering the many lenses through which we view our world.

—From *The 10 Lenses: Your Guide to Living & Working in a Multicultural World*, by Mark W. Williams (*Capitol Books, 2001*)



You see a voicemail *waiting on your laptop. So now you can share and respond to information however you want. It's possible when Avaya transforms your company's voice and data systems by getting them working together. Reliably. Securely. With our innovations in voice and in-depth expertise in data, you stay accessible, you stay connected. Find out why more than 90% of the FORTUNE 500® use Avaya communications to power their business, visit avaya.com/nowone.*

AVAYA

COMMUNICATION WITHOUT BOUNDARIES

SUPPLY CHAIN MANAGEMENT

New Links in the Chain

By Meredith Levinson

THE PROLIFERATION OF trade exchanges and B2B technologies is fundamentally changing the way companies do business. Grady Means, managing partner at PricewaterhouseCoopers' Washington practice and coauthor of *Meta-Capitalism: The E-Business Revolution and the Design of 21st-century Companies and Markets* (John Wiley & Sons, 2000) with colleague David M. Schneider, believes the economic slowdown in the United States is indicative of a major shift in business practices brought on by the Internet and online exchanges.

CIO: What is this transformation?

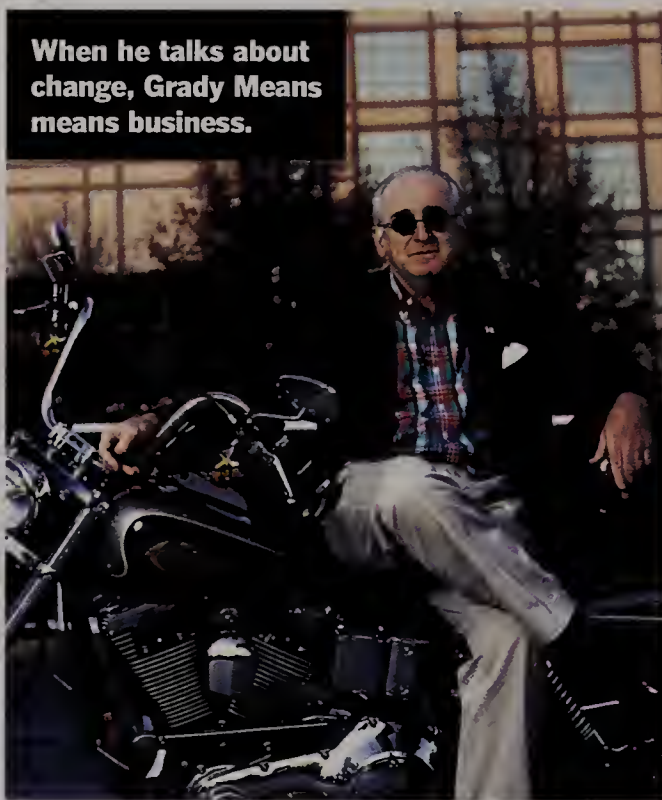
Means: It's a new form of capitalism. The principles are that you can get capital—human, physical, financial, brand—through the Internet. If you look at the balance sheets of large companies over the past few years, you see them selling off a lot of their factories. You see them outsourcing a tremendous amount—more than they ever did before. You see them developing alliances and using the Net to identify and manage those alliances. The model says we don't have to own factories, but we have to know how to manage the supply chains and the factories that we don't own but that produce our products. It lets companies decapitalize more quickly, drive their working capital down more quickly and their EBIT [earnings before interest and taxes] up.

How is the economic slowdown indicative of this change?

Even though stocks have taken a beating, U.S. productivity is up and seems to continue to grow. Alan Greenspan and others explain [that] the continued growth in

productivity in spite of the apparent economic slowdown is [a result of] companies moving to these new types of tech-

When he talks about change, Grady Means means business.



nologies and using them more effectively. Companies in just about every sector are putting more of their procurement and more of their supply chain online.

How relevant is this idea of outsourcing business operations in the post-Sept. 11 world?

When talking about connecting through virtual networks, you've got the elements of a disaster recovery plan, which is very different if you have one manufacturing plant vertically integrated, making everything from back to back. People have discovered that using virtual systems and technologies that can prepare and repair themselves and reassemble supply chains quickly is a very smart move in an era where we face terrorist problems and other unpredictable attacks. There's no question recent events [of Sept. 11] will accelerate these new economy principles.

SECURITY

GovNet Not?

GROWING CONCERN OVER

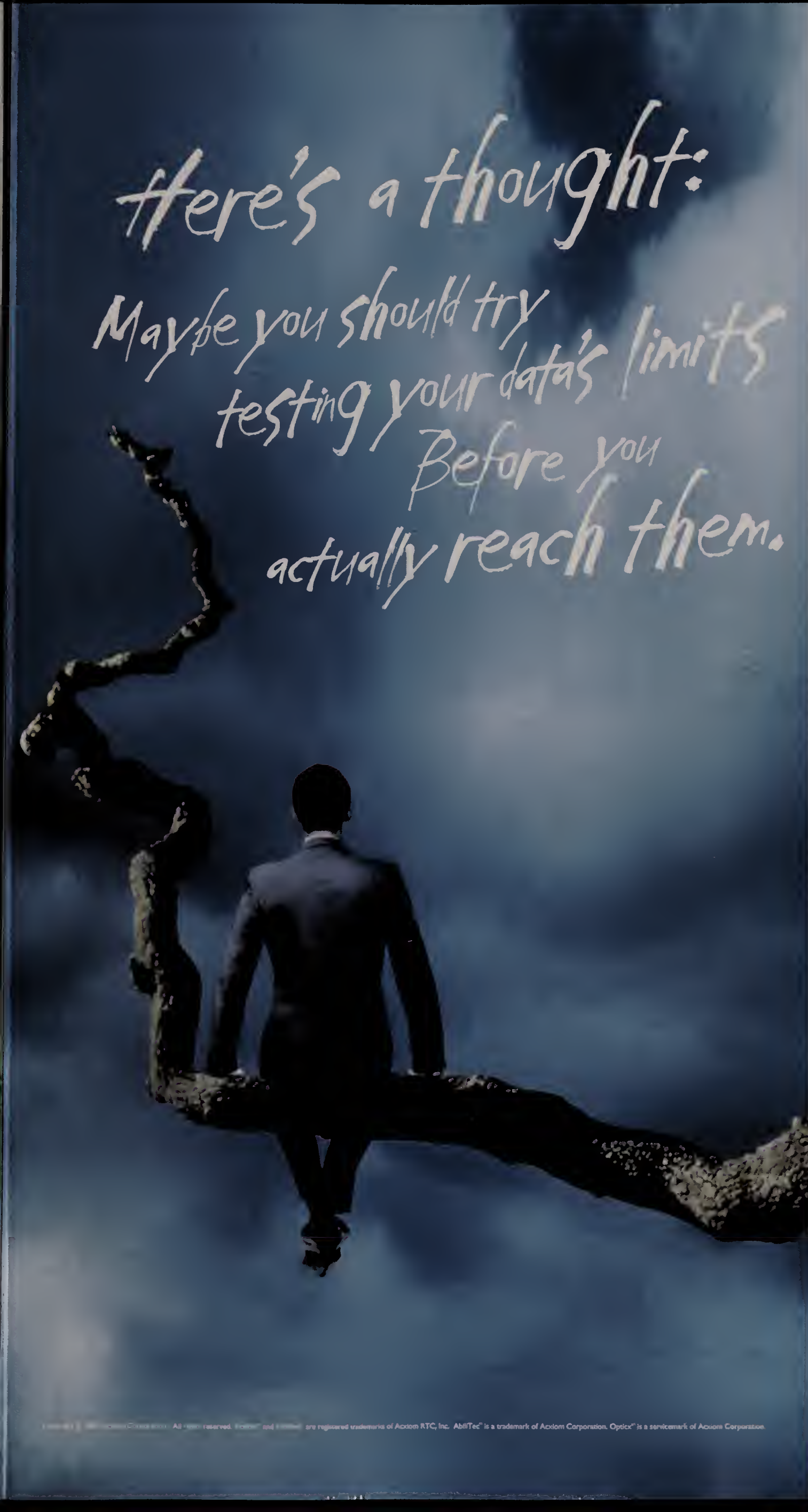
government information getting into the wrong hands has prompted lawmakers to consider how to safeguard electronic data. Richard Clarke, who was made head of federal cybersecurity last October, has proposed a secure government voice and data network called GovNet. This network would be independent and therefore impervious to hackers and the denial-of-service attacks that have debilitated government networks in the past.

GovNet would keep critical information on servers separate from the Internet and therefore secure from the vulnerabilities inherent in public sites. Private companies, which would ultimately bid for the contract if the idea goes forth, responded to the government's request for information on the topic through October and November. Most thought it was a good idea but difficult if not impossible to put into practice.

Designing a secure and reliable infrastructure wouldn't be the sticking point, according to Amit Yoran, CEO of security services company Riptech in Alexandria, Va., and former information security program director at the Defense Department. The problem would be monitoring.

Maintaining a private network as secure as that which the government envisions would involve serious effort to ensure that nobody accidentally plugged a PC with Internet access into GovNet, allowing the information to flow through the public outlet they've been trying to avoid, Yoran says. Officials hope to have analysis and a development time line done by this month.

—Stephanie Viscasillas



Here's a thought:
Maybe you should try
testing your data's limits
Before you
actually reach them.

Acxiom® can show you how to go further than ever with your data.

So how do you get started? With a simple report called OpticxSM. In a matter of days, you'll receive a data analysis that could reveal millions of dollars in opportunities. Then we'll show you how to take advantage of those opportunities by integrating InfoBase® data products into your customer data-driven initiatives. We can also introduce you to relationship-building tools like AbiliTecTM, our market-leading Customer Data Integration software that enables a single view of your customer.

If your marketing and customer relationship programs rely on accurate data to succeed, you should rely on Acxiom.

ACXIOM®

www.acxiom.com
PRIVACY ASSURED

Keynote

New Ideas from Leading Lights

Go Slowly with Web Services

To reap the benefits of Web services technology, keep it simple and take an incremental approach

BY JOHN HAGEL, JOHN SEELY BROWN AND
DENNIS LAYTON-RODIN

AS THE HYPE SURROUNDING Web services gains momentum, many CIOs are reacting with skepticism and concern. But Web services do offer real business benefits. By breaking down enterprise applications into shareable components—known as services—each of which performs a different task, organizations can connect applications within or across companies or enhance the functionality of existing applications. (See “Make Way for Web Services,” *Emerging Technology*, Oct. 15, 2001.) Web services use public standards such as XML, which allows them to provide a much lower cost and more flexible approach to connecting applications than traditional approaches like EDI or EAI. They also make it easier to coordinate business activities, especially across enterprises, leading to lower operating costs, significant savings and attractive growth options.

CIOs need to find ways to gain experience and reap some of the benefits of this new technology without exposing the enterprise to undue risk. The most promising way to do that is to keep it simple, keep it incremental, and learn, learn, learn.



Keep It Simple

Data: By focusing on specific, event-based information that directly affects the actions of the enterprise, CIOs can help to simplify their company's approach to data sharing. For example, Dell Computer was seeking to lower the inventory in its supply chain through more focused information sharing with its partners. The company aimed to fulfill orders within five days of receipt, but it took its suppliers up to 45 days to fulfill them. Since Dell and its partners all operated on disparate systems, information sharing was very labor intensive. For this reason, Dell used to carry inventories of up to 30 hours in its factories as a buffer against unexpected disruptions in the supply chain. Rather than trying to impose a common technology platform as a means of achieving transparency across its supply chain, Dell is now using Web services to provide

ILLUSTRATION BY DAVID MILLER

Step Six: Pilot, Test & Learn

ENSURING CRM SUCCESS

The first five steps are now complete and you're getting close to achieving your goal of building a successful CRM infrastructure.

- Step 1 outlined the development of a business case accompanied by an ROI model that quantified costs and anticipated benefits
- Step 2 was devoted to creating a clear picture of the enterprise's prospects and customers—their demographics, preferences, the products and services they buy, and the channel(s) through which they make their purchases
- Step 3 defined the current and desired infrastructure states, and identified technical gaps in order to deploy the infrastructure needed to support the CRM initiatives
- Step 4 created an actionable strategy of customer interaction policies to meet a company's ROI goal
- Step 5 developed common data classifications for CRM business definitions, also called CRM classes

Having completed the first five steps, you're now ready to rollout your infrastructure. Right? Well, maybe. If you've executed the first five steps then you should have a solid foundation for launching your CRM initiatives, but in these economic times many companies are looking to test their CRM strategy and infrastructure before enterprise rollout to make sure the CRM initiatives will achieve the expected ROI. The best way to ensure success is

to launch a pilot program to test the application of your CRM initiatives.

Why Pilot?

Often, companies are in such a rush to rollout their new infrastructure that they don't test the CRM system and processes to make sure that the assumptions on which the strategy was built are still applicable. There are several reasons why your intended goals and strategy should be tried on a smaller scale before deploying a CRM system enterprise-wide. Some of the unanticipated variables that may affect the results include:

- The economic environment
- Changes in the competitive landscape
- Shifts in customer needs
- Changes in partner alliances

If the first five steps were correctly executed, the resulting CRM infrastructure should have the flexibility to accommodate these changes. The sixth step enables you to prove the hypotheses from Step 1's ROI analysis and provides you with the justification for enterprise rollout.

What are the risks of not first launching a CRM pilot? The premise behind the pilot is that there are a variety of assumptions associated with your ROI analysis: target customer segments, their preferences, ability of the company to meet their needs, etc. that you want to prove. Most companies make educated guesses about these assumptions. The pilot allows the company to make big, enterprise-wide infrastructure bets. For instance, building a Web self-service capability may or may not be justified depending on

the adoption rate. By piloting this capability first, the company can solidify expected adoption rates, as well as learn more about necessary functionality. This learning will ensure successful enterprise rollout. If you are confident about the assumptions behind the ROI analysis, a pilot may not be necessary.



Seven Steps to Successful CRM Infrastructure

A Guide for CIOs

This is the sixth in a series of articles presented by the Wheelhouse Corporation that describes seven key steps to implementing the technical infrastructure supporting customer relationship management (CRM) initiatives.

These articles are based on Wheelhouse's extensive experience as a CRM infrastructure provider helping Fortune 1000 companies deploy, manage and optimize marketing-driven CRM systems. Wheelhouse customers include such well-known companies as Cablevision Systems Corporation, J.P. Morgan Chase, Merrill Lynch, Trendwest Resorts, Inc., VoiceStream Wireless and Wells Fargo.



Custom Publishing

Advertising Supplement

Three Phases of Piloting

Piloting is a way to significantly minimize the risks associated with CRM system implementations. Broadly, there are three phases in executing a pilot program:

1. Developing the strategy for the pilot program entails deciding what you are trying to test.

- In some cases, companies are trying to validate a hypothesis for the return associated with the new capability or service offering enabled by a CRM system. In order to test the hypothesis, the company will design a campaign or series of campaigns aimed at testing the new capability or service offering. For instance, in the case of Web self-service, the company might roll out limited functionality to a small group of customer segments to gain valuable insight into what would be necessary for a successful enterprise launch.
- In other cases, companies want to make sure that their own business users will be able to benefit from the CRM system's functionality. This is a key concern that should not be overlooked. While an application may have the necessary checkbox functionality, if the organization's business users cannot be trained to use the application appropriately, then the investment will be lost.
- Finally, every CRM system must be able to integrate with the other CRM systems and legacy applications that comprise the entire infrastructure. For instance, in the case of a campaign management system, you must be able to extract data from the appropriate systems and output lists to operational systems that can implement the campaigns. This application integration is sometimes overlooked, leading to siloed applications with limited functionality.

2. Rolling out the pilot program includes launching the new service or offering on a limited scale or timeframe to gather the necessary data to justify enterprise rollout. Tactical activities include pilot user training,

ongoing program development and the execution of several campaigns. The rollout may also include application and system support and management to optimize the pilot's performance.

3. Learning from the pilot includes understanding what worked and quantifying the results. At the end of the pilot, the company should be able to publish the pilot's ROI results, which should provide the data necessary for detailing the roadmap for full-scale rollout of the application. At this point, the company can also make any necessary refinements based on the pilot results prior to enterprise rollout. Looking ahead, the enterprise rollout activities should include timetables for deployment, time and capital resource requirements, and, if necessary, additional features/functionality required.

Outsourcing the Pilot

Many companies lack the necessary infrastructure to execute a pilot quickly without incurring a substantial drain on IT resources. One option is to outsource the pilot to a CRM infrastructure provider like Wheelhouse that can provide the systems and applications for testing CRM applications in production mode. The key benefit is that IT can focus on the existing business and quickly generate in-market learning associated with a pilot.

Winning with the Pilot Approach

The Financial Services Division of a large, diversified company with \$13 billion in annual sales was considering implementing an analytic CRM solution to execute a series of campaigns that would hopefully result in increased revenue growth through increased usage of existing credit lines and the addition of new credit lines.

However, without the baseline data necessary to predict the ROI associated with these campaigns, the company could not justify the resources required to implement the system in every sub-division. The company recognized the importance of the pilot approach and realized they could use the ROI results from the "test case" project scenario in one sub-division as a means of fore-

casting the ROI for division-wide deployment.

To prove the pilot concept, Wheelhouse conceived of and proposed a six-month pilot program for the company, which included: deploying and managing the analytic CRM solution; designing and executing six specific marketing campaigns (a mix of acquisition, retention and cross-sell programs); and developing an ROI analysis of the program's payback.

Some of the key challenges overcome during this pilot included:

- Designing the optimal software-enabled campaigns and prioritizing them according to highest return
- Developing an ROI model using real data to measure the results generated by system-driven campaigns against a baseline scenario during the test case period
- Deploying the system within a 10-week timeframe to start generating results as quickly as possible
- Demonstrating the value of the new systems through the pilot while minimizing IT impact and immediate hardware expenditures

The pilot objective was to verify that the analytic CRM system could facilitate an increase in revenue by managing a series of campaigns to existing customers and prospects. The pilot helped the company verify that with the analytic CRM system they could add significant top line revenue, yielding sufficient incremental bottom line return to justify the cost of the system and ongoing support.

Coming up in the March 1 edition of *CIO*:

Step 7: Enterprise Deployment: Ready For Prime Time

To download an electronic version of this article, go to www.wheelhouse.com/articles.

To learn more about how we can help your business with CRM infrastructure innovation, call 781-505-3255 or e-mail us at info@wheelhouse.com.

WHEELHOUSE™



CIO 100

CIO MAGAZINE'S ANNUAL SYMPOSIUM & AWARDS



Leadership & Innovation for the Future of the Enterprise

Is your organization capable of moving and using data from any point within the value chain at any time? Have you established technological or procedural integration across your enterprise? Does your infrastructure consist of groups of applications that work together and can freely share information? Can your front-end, customer-facing applications seamlessly deliver data to and use data from back-end systems? If you answered no to any of these questions, you must attend the Fourth Annual *CIO 100 Symposium® & Awards*. Join senior IT executives, industry gurus and CIO 100 Award Winners as they share how they have structured and designed their integrated enterprises.

To enroll, CALL 800 355-0246 or visit our WEB SITE
at www.cio.com/conferences.

The Broadmoor

Colorado Springs
Colorado

August 18-20, 2002

Moderator

Paul Saffo
*Director and
Roy Amara Fellow
Institute for the Future*

Partners

EDS
PeopleSoft
Predictive Systems, Inc.
Sterling Commerce

*This year's CIO 100
Awards Ceremony is
proudly underwritten by*



Keynote

limited visibility through the automatic sharing of simple event acknowledgements, such as notification when a product is shipped on time. By giving Dell more timely notification of potential disruptions in supplies, this approach lets the company work around them—before they become real problems. The bottom line: Dell has been able to reduce its raw materials inventory to just three to five hours.

Protocols: The key challenge in integrating across disparate systems is getting divergent applications—not to mention divergent frameworks like CORBA and DCOM—to talk with each

specify in great detail the activities to be performed by each partner. But such high levels of specification can reduce flexibility to adapt to unforeseen changes in market conditions. Web services technology, on the other hand, creates the potential for more flexibility by allowing companies to establish connections across key applications much more quickly and cheaply than they would be able to using traditional options that require all participants to install expensive, proprietary and complex technology. Web services achieve these benefits by taking diverse technology platforms as a given and focusing

on establishing very “light” interfaces using public standards like XML to enable communications across applications. To exploit this potential, companies need to gradually shift from high-specification approaches, such as very detailed contracts, to alternative approaches that rely on more flex-

ible ways of achieving the desired business results, such as via incentives and selective information visibility.

Amount of value: CIOs can also manage risk by initially focusing on individual business activities that have relatively low value and then expanding over time to include higher-value ones. For example, many financial services companies are starting to use Web services to distribute content like investment analyst reports to their clients. As these companies gain more experience, they can begin to expand to higher-value (and higher-risk) ones such as the processing of client transactions.

Learn, Learn, Learn

Ultimately, the key to reducing risk and increasing business value is to learn from early experience and deepen skills in the application and operation of Web services. But learning does not happen automatically. CIOs need to design appropriate information feedback loops to support the learning process. The good news is that, by automating connections across applications, Web services technology can generate very helpful data about its own performance. By capturing such data and transforming it into useful information, CIOs can significantly accelerate the learning process. That, in turn, will help the organization address future opportunities more quickly.

Start simply, but do start—you won’t learn anything if you do nothing at all. **CIO**

Start with a limited number of well-established business partners with whom you already have strong, trust-based relationships.

other. An alternative approach is to use very simple protocols such as SOAP (simple object access protocol) or FTP to just move the data from its source application, such as a manufacturer’s forecasting system, to its target application, such as a supplier’s MRP system. Once the data is at its target application, simple scripts can be crafted to insert the data into the application for use. By focusing on transferring specific data as opposed to invoking applications, it is possible to allow incompatible environments to work together.

Business processes: Dell succeeded because it worked hard to reduce its process to the lowest common denominator. It realized that much of the complexity in supply chain orchestration can be eliminated by reducing the process to a series of very simple, almost binary, communications. At the end of the day, partners need to share the information a process conveys, not the process itself.

Keep It Incremental

Business partners: Start with a limited number of well-established business partners with whom you already have strong, trust-based relationships and a deep understanding of each other’s

business. Then, after some experience, you can expand the number and diversity of business partners involved. Dell started with less than a dozen vendor-managed hubs—spe-

cialized third-party logistics providers that coordinated shipments from hundreds of suppliers. As it gained experience, Dell broadened its focus to include its suppliers.

Level of specification: To manage the risks inherent in many business relationships, such as unexpected shortages in supply, companies have traditionally tried to negotiate contracts that

CIO.com

Are Web services ready for prime time? You tell us. Go to **CIO** **READER POLL** at www.cio.com.

What are your thoughts about Web services? Tell Columns Editor Katherine Noyes at knoyes@cio.com. John Hagel (j_hagel@hotmail.com) is a management consultant and author based in San Francisco who specializes in the strategic implications of IT. John Seely Brown (jsbrown@parc.xerox.com) is chief scientist at Xerox and former director of Xerox PARC. Dennis Layton-Rodin (dennis@interventuresconsulting.com) is an e-commerce and Web services consultant based in San Francisco.

INTEGRATION:

A HERCULEAN TASK.



Reshaping IT infrastructures can be difficult for mere mortals.

How's this for a challenge? Take an e-business infrastructure teeming with disparate networks, platforms, standards and applications, and make them all work as one. Across all business units. With suppliers, partners and customers. Yep, integration is one colossal test of strength.

So how do you tackle it? You can start by ordering our Software Evaluation Kit for Linux®. (It's yours free by simply registering by phone or online.) In it you'll find an overview of e-business integration, along with perspectives and strategies for tough integration challenges. You'll also get free trial code for IBM software such as DB2®, WebSphere®, Lotus® and Java™ Tools. It's the perfect integration software primer. And best of all, everything in it also speaks Linux.

As the fastest growing and most accessible operating system, Linux is an ideal platform for the integrated environment. For small business or corporate behemoth. It's open, scalable and hardware-agnostic.

That's why IBM offers the industry's richest selection of code for Linux. And then backs it with IBM service, support and consulting. That means an army of integration experts proficient in everything from designing to deploying to maintaining truly open and interoperable systems.

To see how you can take on an integration project, with little to no chance of a hernia, visit our Web site or call today for your free Software Evaluation Kit for Linux.



CLICK OR CALL FOR A FREE IBM SOFTWARE EVALUATION KIT FOR LINUX.



ibm.com/e-business/soready/p4



1 800 426 7080, ask for Open

IBM

*LEGAL NOTE: IBM, Lotus, the e-business logo and other marks designated ® or ™ are trademarks of International Business Machines Corporation in the United States and/or other countries. Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both. Other company, product and service names may be trademarks or service marks of others. Linux is a registered trademark of Linus Torvalds. © 2001 IBM Corporation. All rights reserved. Limit one kit per respondent. Respondents will be required to complete a registration form in order to participate in this offer. Offer available only in U.S.



Finally, a Real



Michael Young,
chief information
security officer at
State Street Global
Advisors, says hard
numbers would help
him justify more
security staff.

Return on Security Spending

For years CIOs have had to use scare tactics and other soft arguments to justify an investment in security. Now, for the first time, they may be able to get the hard numbers they need to show ROI.

BY SCOTT BERINATO

You need fire sprinklers.

Obvious advice, maybe, but once upon a time fire sprinklers were considered a waste of money. In fact, in 1882, sprinklers were considered to be as dubious an investment as information security is today.

That's why George Parmalee, in March of that year, set a Bolton, England, cotton spinning factory on fire. In 90 seconds, flames and billows of thick black smoke engulfed the mill. After two minutes, 32 automatic sprinklers kicked in and extinguished the fire.

It was a sales pitch. Parmalee's brother Henry had recently patented the sprinklers and George hoped the demonstration would inspire Britain's mill owners—many of whom came to watch—to invest in his brother's new form of security.

But they didn't. "It was slow work getting sprinklers established in this country," wrote Sir John Wormald, a witness to the conflagration. Only a score of factories bought the devices over the next two years.

The reason was simple, and it will sound familiar to CIOs and chief security officers: "[Parmalee] realized that he could never succeed in obtaining contracts from the mill owners...unless he could ensure for them a reasonable return upon their outlay," Wormald wrote.

Today, it's data warehouses, but data is as combustible as cotton. Thousands of George Parmalees—CIOs and CSOs, not to mention security consultants and vendors—are eager to demonstrate inventions that extinguish threats to information

Reader ROI

- ▶ Learn why it's so hard to define the return on security investment
- ▶ Read how economists are attempting to quantify those returns
- ▶ Learn how the numbers will fundamentally change infosecurity

before those threats take down the company. But the investment conundrum remains precisely what it was 120 years ago. CEOs and CFOs want quantifiable proof of an ROI before they invest.

The problem, of course, is that until just recently a quantifiable return on security investment (ROSI) didn't exist. The best ROSI argument CIOs had was that spending might prevent a certain amount of losses from security breaches.

But now several research groups have developed surprisingly robust and supportable ROSI numbers. Their research is dense and somewhat raw, but security experts praise the efforts as a solid beginning toward a quantifiable ROSI.

"I was quite surprised, to be honest," says Dorothy Denning, a professor at Georgetown University and a widely regarded information security expert. "I have a good sense of what's good research, and all of this seems good. They are applying academic rigor."

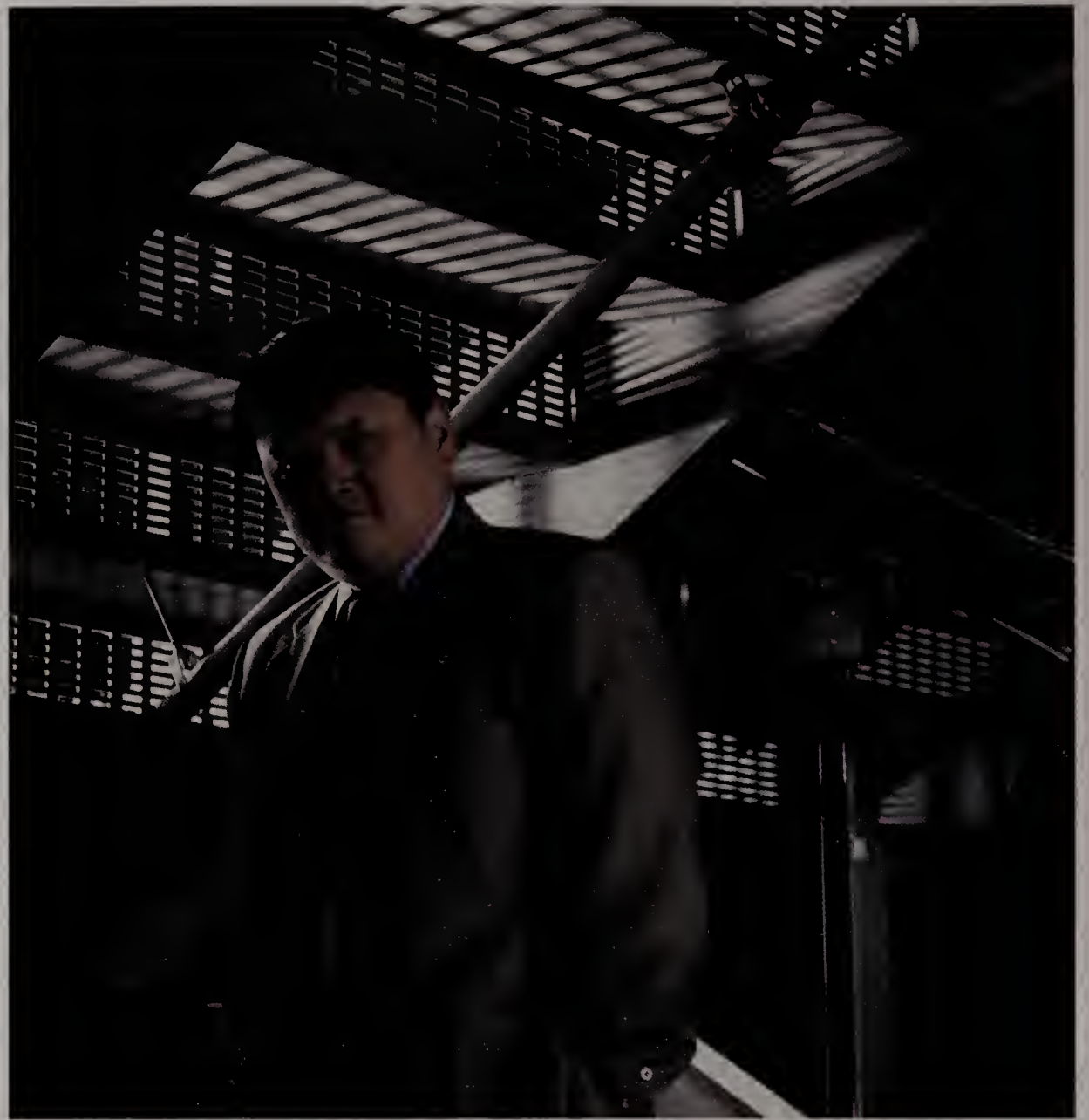
IT executives are hungry for this kind of data. "It's very easy to get a budget [for security] after a virus hits. But doing it up front makes more sense; it's always more secure," says Phil Go, CIO at design and construction services company Barton Malow in Southfield, Mich. "Numbers from an objective study would help me. I don't even need to get hung up on the exact numbers as long as I can prove the numbers are there from an unbiased study."

If the new findings about ROSI are proven true, they will fundamentally change how information security vendors sell security to you and how you sell security to your bosses. And the statement "You need information security" will sound as commonsensical as "You need fire sprinklers."

Soft ROSI

Tom Oliver, a security architect for NASA, recently spent tens of thousands of dollars on a comprehensive, seven-week external security audit. At the end, Oliver received a 100-page booklet with the results—which were mostly useless.

"[The auditors] said, 'You were very



"It's very easy to get a budget for security after a virus hits. But it makes more sense to do it up front. Numbers from an objective study would help me."

—PHIL GO, CIO, BARTON MALOW

secure. We were surprised we couldn't access more [sensitive data]," says Oliver, who is employed by Computer Sciences (under contract to NASA) at the Marshall Space Flight Center in Huntsville, Ala. "But I wanted to know how we compared to other government agencies. If I put another \$500,000 into security, will that make me more secure?"

"There was no return on investment in there at all," he adds. "I spent \$110,000, and I got, 'You're good.' What's that?"

This is the dilemma that faces CIOs and CSOs everywhere. A lack of data on infose-

curity makes it difficult to quantify what security gets you. In lieu of numbers, information executives rely on soft ROSIs—explanations of returns that are obvious and important but impossible to verify.

Executives know the threat is real, but CIOs say executives don't *feel* the threat. No one buys burglar alarms until someone they know is robbed. For that reason, IT relies on, more than anything, fear, uncertainty and doubt to sell security—in other words, FUD. The thinking is, if you scare them, they will spend.

Spending too much on your RISC/UNIX infrastructure?

> Migrate to **LINUX**

Red Hat® Linux® on Compaq ProLiant™ Servers

Saving money creates competitive advantage. And you'll save BIG in Total Cost of Ownership when you migrate to Linux.* Combine Compaq ProLiant servers, the world's best-selling server, and Red Hat Linux, the world's leading Linux platform. You'll have higher performance, lower TCO, and 24/7 support that's there when it counts.

***Get the numbers.** Read the IDC whitepaper on Total Cost of Ownership.
Go to www.redhat.com/explore/tco10

COMPAQ +  **redhat.**

© 2002 Red Hat, Inc. All rights reserved. "Red Hat," Red Hat Linux, the Red Hat "Shadow Man" logo, and the products listed are trademarks or registered trademarks of Red Hat, Inc. in the US and other countries. COMPAQ, the Compaq logo and ProLiant are registered in the U.S. Patent and Trademark Office. Linux is a registered trademark of Linus Torvalds. All other trademarks are the property of their respective owners. The IDC research included standard Intel architecture servers from a number of vendors.

1-866-2REDHAT #45553

But even FUD has limitations, especially during a recession. The signs of the down economy's impact are everywhere. At Fidelity, the chief information security officer (CISO) position was eliminated. At State Street Global Advisors in Boston, CISO Michael Young needs four more security staffers, but there's a hiring freeze. "If we invest in anything that promotes less downtime, that's a positive ROI," Young says. "But still, there's no quantified value associated with [staffing], and that's a problem. If I could go in there with a return on the bottom line resulting from these hires, bingo! That would be it."

To say there's no good ROSI data is not to say there's no data. Numbers are indeed used to sell security; it's just that they've had zero statistical validity.

The marquee example of that is the Computer Security Institute's (CSI) annual computer crime survey. Each year, CSI and the FBI report security trends in plain, often stark terms. The 2001 report's centerfold is a chart called "The Cost of Computer Crime." It says that losses from computer crime for a five-year period from 1997 to 2001 were an eye-popping \$1,004,135,495.

There's just one problem with that number. "It's crap," says Bruce Schneier, security

expert, founder and CTO of security services vendor Counterpane Internet Security in Cupertino, Calif.

"There's absolutely no methodology behind it. The numbers are fuzzy," agrees Bill Spernow, CISO of the Georgia Student Finance Commission in Atlanta. "If you try to justify your ROSI this way, you'll spend as much time just trying to justify these numbers first."

Therein lies the appeal of the current crop of studies. They have scientific method and a foundation of previously established research.

Hard Numbers, at Last

In 2000 and 2001, a team at the University of Idaho followed George Parmalee's example. The team built an intrusion detection box, a security device that sits at the edge of a network and watches for suspicious activity among users who get past the firewall. Incoming traffic that follows a certain pattern is flagged, and someone is alerted to look into it.

The researchers then hacked the box, code-named Hummer. Their goal was to prove that it's more cost-effective to detect and then deal with attacks using intrusion detection than it is to try to prevent them

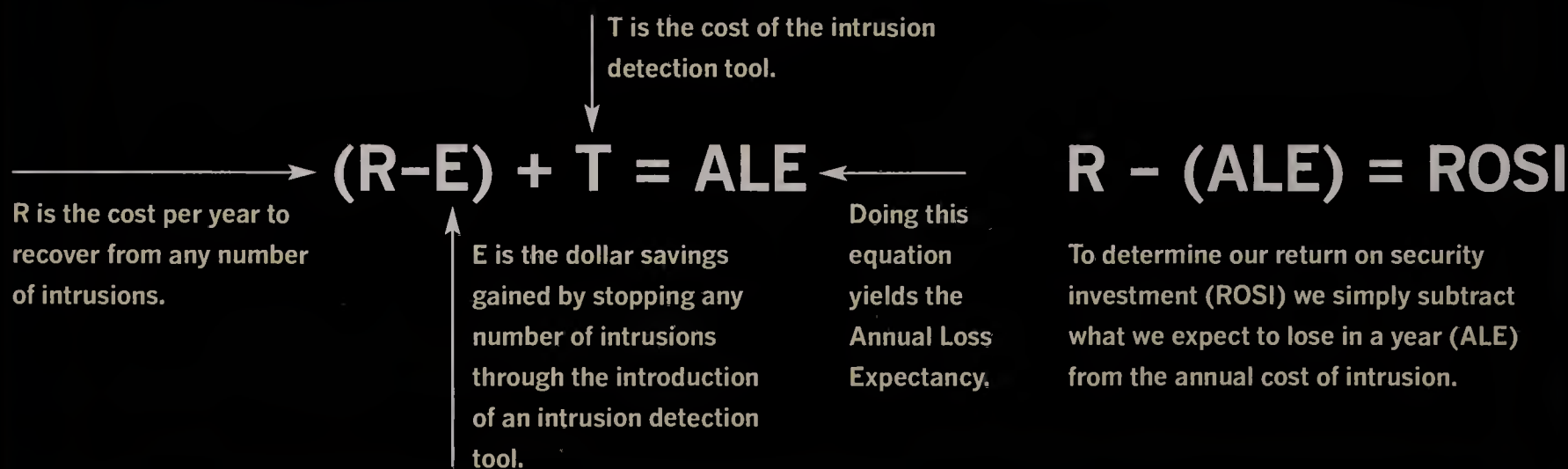
using other means. The problem was assigning valid costs for this cost-benefit analysis. For instance, what does it cost to detect an incident? What are day-to-day operational costs of security? What are the cost consequences if you miss an attack?

The Idaho team, led by University of Idaho researcher HuaQiang Wei, began by culling research from all over. Then they combined what they found with some of their own theories, assigning values to everything from tangible assets (measured in dollars with depreciation taken into account) to intangible assets (measured in relative value, for example, software A is three times as valuable as software B). Different types of hacks were assigned costs according to an existing and largely accepted taxonomy developed by the Department of Defense. Annual Loss Expectancy (ALE) was figured. ALE is an attack's damage multiplied by frequency. In other words, an attack that costs \$200,000 and occurs once every two years has an ALE of \$100,000.

To verify the model, the team went about attacking their intrusion detection box with commonly attempted hacks to see if the costs the simulation produced matched the theoretical costs. They did.

Determining cost-benefit became the sim-

Calculating Return on Security Investment Idaho researchers developed this formula for calculating the ROI of using intrusion detection as a security defense



SOURCE: UNIVERSITY OF IDAHO

RETURN ON COMMUNICATIONS



**WEB SITE
TRAFFIC**



**WEB SITE
TRAFFIC JAMS**

You can't have too much of a good thing. Unless you're talking Web transactions—and your network can't handle the load. After **Nabiscoworld.com** launched, the site managers faced exactly this issue: too many visitors were arriving at the site. Which meant too many people were turned away. Unhappy. AT&T solved the problem. We re-architected the site to handle double the current monthly visits. And we added performance tracking and data-capture tools to squeeze out more usable

information. Result: Nabiscoworld.com receives 90% more visits. With no change in response time. And at greatly reduced cost. It's proof that the right investment in your communications not only solves problems. It brings an immediate return. A return AT&T helps you realize.

Got a traffic problem? AT&T can help you solve it.

Results: Measurable. Possibilities: Boundless.

Call AT&T toll free at 1 866 346-9384 or visit us at www.attbusiness.com/return



ple task of subtracting the security investment from the damage prevented. If you end up with a positive number, there's a positive ROSI. And there was. An intrusion detection system that cost \$40,000 and was 85 percent effective netted an ROI of \$45,000 on a network that expected to lose \$100,000 per year due to security breaches.

If applied to real-life examples, the Idaho model could produce the data that CIOs need in order to demonstrate not only that their investment pays off, but by how much. Next, the Idaho team wants to put the ROSI analysis inside Hummer. As threats are detected, the box will compare response cost against damage cost. Only if the damage cost is higher will it stop an attack. In other words, the device itself decides if it's cost-effective to launch an emergency response.

Of course, Hummer's data would be logged for review. Putting those features in commercial intrusion detection systems would yield reports that showed how much money CIOs saved using intrusion detection. This would then allow them to compare the costs of one security system against another. And wouldn't that be handy?

The Value of Building Security in Early

While Idaho was toying with Hummer, a group of researchers from MIT, Stanford University and @Stake, a security consultancy located in Cambridge, Mass., was playing with Hoover.

Hoover is a database. Amassed by @Stake, it contains detailed information about software security flaws—from simple oversights to serious weaknesses. Hoover reveals an ugly truth about software design: Securitywise, it's not very good.

Right now, Hoover contains more than 500 data entries from nearly 100 companies. Participants in the study, such as Bedford, Mass.-based RSA and Fairfax, Va.-based WebMethods, wanted to assess how secure-

ly they were building their software and how to do it better.

First, the Hoover group focused on the ROSI of secure software engineering. The group wanted to *prove* a concept that seems somewhat intuitive: The earlier you build security into the software engineering process, the higher your return on that investment. And prove it they did.

It took 18 months of letting Hoover suck up data from @Stake's clients to create a rep-

Kevin Soo Hoo. "Security has been an add-on at the last minute, and detecting security problems has been left to users." And, of course, hackers.

With the research in hand, Soo Hoo, MIT Sloane School of Management student Andrew Sudbury and @Stake Director Andrew Jaquith tweaked the general quality assurance models to reflect the security world, as based on the Hoover data.

Overall, the average company catches only a quarter of software security holes. On average, enterprise software has seven significant bugs, four of which the software designer might choose to fix. Armed with such data, the researchers concluded that fixing those four defects during the testing phase cost \$24,000. Fixing the same defects after deployment cost \$160,000, nearly seven times as much.

The ROSI breakdown: Building security into software engineering at the design stage nets a 21 percent ROSI. Waiting until the implementation stage reduces that to 15 percent. At the testing stage, the ROSI falls to 12 percent.

"Our developers have said they believe they save 30 percent by putting security in earlier, and it's encouraging to see proof," says

Mike Hager, vice president of network security and disaster recovery at Oppenheimer Funds in Englewood, Colo. "Executives need answers to questions like, 'What risk am I mitigating?' We haven't had the means to educate them without FUD." From numbers like those, he adds, "We'll be able to sell security from a business perspective."

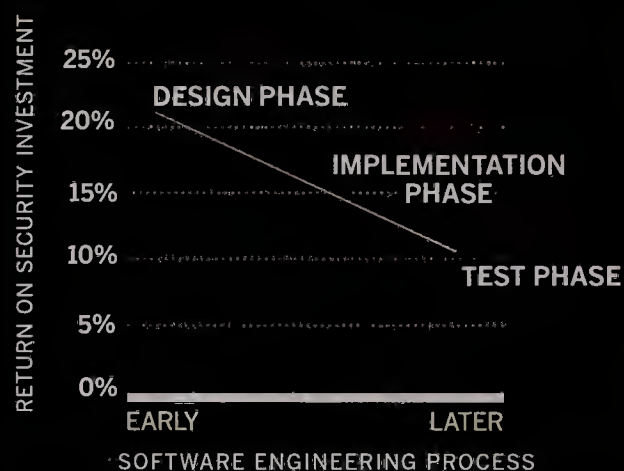
Hoover keeps growing. The group plans to publish other ROSI numbers. Next up: assigning a statistically valid ROSI to incident readiness. It will (they hope) show how ROSI increases as the effective response time to a security incident decreases.

The Law of Diminishing ROSI

If you want to give CEOs and CFOs a ROSI they can love, show them a curve.

The Earlier You Invest in Security, the Greater the Return

Researchers found that you get a 21% return on your security investment at the software design phase, a 15% return at the implementation stage and a 12% return at the testing stage.



SOURCE: MIT/STANFORD/@STAKE

representative sample of the entire software landscape. Data in hand, they looked for previous research to base their work on. There was little, so they made a critical assumption, which unlocked the study's potential. The team decided that a security bug is no different than any other software bug.

Suddenly, security was a quality assurance game, and there was a *ton* of existing data and research on quality assurance and software. For example, one bit of research they used came from a widely accepted 1981 study that said that spending a dollar to fix a bug (any bug) in the design process saves \$99 against fixing it during implementation.

"The idea of security software as quality assurance is extremely new," according to team member and Stanford economics PhD



***Snap-on* has the best tools
for diagnosing, aligning, and
tightening pretty much anything.**

Like say, their productivity.

As you read this ad, someone is buying a Snap-on® tool — from either a Snap-on dealer, a sales rep, or online. With 80,000 customers now buying over the web, Snap-on needs a clear understanding of its click stream data. So this global leader turned to Cognos, the global leader in business intelligence.

Cognos helps Snap-on turn its masses of web data into actionable information. Like segmenting its customers, refining the product mix, and increasing the profitability of that mix. Information that allows for maximum productivity. So that this 81-year-old company can make fast, smart decisions, and remain the world's premier tool and equipment company for another 81 years.

Cognos — the business intelligence inside the world's most intelligent businesses.

COGNOS®
www.cognos.com/red

That's what researchers at Carnegie Mellon University (CMU) did in "The Survivability of Network Systems: An Empirical Analysis." The study is as dense and dispassionate as its title. (So are its bureaucratic underpinnings: It was done at the Software Engineering Institute in conjunction with the public-private cooperative effort called CERT, both housed at CMU.)

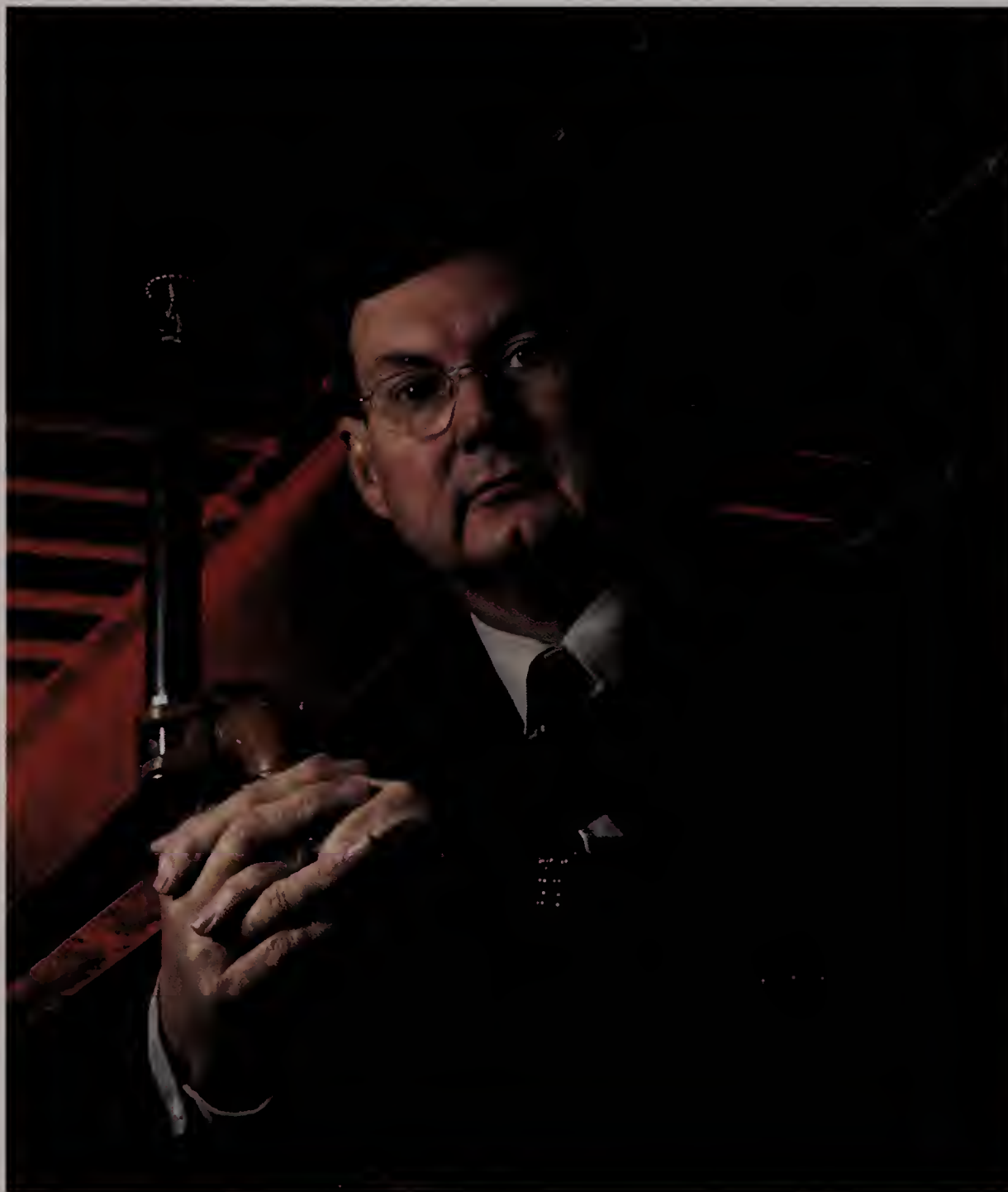
The study measures how survivability of

attacks increases as you increase security spending. Economists call it regression analysis. It's basically a curve showing the trade-off between what you spend and how safe you are.

To get the curve, the team relied on data from CERT, established by the government in 1988 after a virulent worm took down 10 percent of the then-very-limited public network (what would become the Internet).

"Our developers have said they believe they save 30 percent by putting security in earlier, and it's encouraging to see proof."

—MIKE HAGER, VP OF NETWORK SECURITY, OPPENHEIMER FUNDS



CERT logged security breaches and tracked threats, mostly through the volunteer efforts of the private and public organizations directly affected.

CMU researchers took all the CERT data from 1988 to 1995 and modeled it. Among the variables they defined were what attacks happened, how often, the odds any one attack would strike any given company, what damage the attacks produced, what defenses were used and how they held up.

The researchers used the data to build an engine that generated attacks on a simulated enterprise, which reflected the rate and severity of attacks in the real world. The computer program was an attack dog—CMU set it loose on a fictitious network and said, "Sic!"

Then they recorded what happened, how the network survived the attacks. After that, the researchers tweaked the variables. Sometimes they gave the faux-enterprise stronger defenses (higher cost). Other times they increased the probability of attack to see how the network would hold up against a more vicious dog.

An inventive aspect of the CMU study was that it didn't treat security as a binary proposition. That is, it didn't assume you were either hacked or not hacked. Rather it *measured* how *much* you were hacked. Survivability was defined as a state *between* 0 and 1, where 0 is an enterprise completely compromised by attack, and 1 is an enterprise attacked but completely unaffected. This provides a far more realistic model for the state of systems under attack than an either-or proposition.

The data from the simulation was plotted on a curve. The X-axis was cost, which was in absolute terms (that is, a cost of 10 is twice as much as a cost of 5, but they don't have direct analogs to dollars). The Y-axis was survivability, plotted from 0 to 1.

The curve looks like smoke pouring out of a smoke stack; it rises in a sharp vertical at first, then trails off in an ever more tapering curve. The ROSI rises as you spend more, but (and this will gladden the hearts of CFOs) it rises at a diminishing rate.

PHOTO BY GEOFFREY WHEELER

Will I be able to lower my IT costs while accelerating
my Windows® XP and Windows® 2000 deployments?

yes
you
will.

Only with ON Technology. Now you can dramatically cut the cost of maintaining your PC, handheld, and server infrastructure. ON Command CCM® doubles your IT efficiency so you can do more with less. It's the only enterprise solution that delivers unattended deployment of operating systems, content, and mission-critical applications such as Oracle and Siebel, plus automated disaster recovery. Open and scalable, ON solutions leverage your investments in tools such as Ghost™, MSI, and Active Directory, with implementation times measured in weeks rather than years. Sound too good to be true? Ask ON customers like Staples, Home Depot, Citigroup, CMGI, and Pfizer. For a FREE white paper or executive seminar with Gartner, visit www.on.com or call 800-326-7549.



Turn **IT** ON.

ON Technology Corporation

Waltham Woods, 880 Winter Street, Building 4, Waltham, MA 02451-1449, USA
Tel: 800-326-7549 • E-mail: info@on.com • Fax: 781-487-3301 • Web: www.on.com

ON Technology, ON Command, and ON Command CCM are registered trademarks, and the ON logo is a trademark, of ON Technology Corporation.

Ghost is a U.S. registered trademark of Symantec Corporation. Microsoft, Windows, and the Windows logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
All other marks are marks of their respective companies.

The researchers believe that they could also overlay that curve with something called an indifference curve, which instead of mapping data maps behavior. It plots the points at which the CEO is satisfied with the combination of cost and survivability. The curve always slopes down and to the right, like the bottom half of a C.

Where the indifference curve and the actual ROSI curve intersect would provide the optimal security spending point. In other words, not only could you prove you need fire sprinklers, you could tell the CEO and CFO how much should be spent on them.

Green Data = Skepticism

Most information executives and security experts believe these ROSI studies will be a significant new tool. But a certain caution lingers. Some CIOs point out that the studies are useless as raw documents; they require translation before the data hits their desks. Several executives also worried about applicability—taking the data out of the lab and putting it in the real world. “The worst thing is for people to say security requires a trillion dollars, and then offer no solution in the real world,” says Micki Krause, director of information security of PacifiCare Health Systems, an HMO in Santa Ana, Calif.

The data itself was also a concern. The CERT data used in CMU’s models only went to 1995, for example. The model for types and frequency of attacks has changed since then. And while Hoover, @Stake’s database, provides gritty details about security holes in software, they are gritty details only from companies willing to participate. Is that representative?

In risk management parlance, the actuarial data is quite green, and CIOs bemoan that fact. The rub is, you can’t just collect data about security the way you can about auto accidents. More CIOs must agree to disclose detailed data about the state of their own security in order to build a portfolio of numbers that will test the early theories.

CIOs want proof, yet they don’t want to be the ones providing the data that will improve the science. Those collecting data have promised privacy in exchange for the knowledge of what the enterprise is spending on security, but it’s slow going getting recruits. “At CERT we’ve protected confidentiality for 12 years. But it’s so hard because they keep [data] to themselves,” says Jim McCurley, technical staff at Software Engineering Institute. Despite all this, security

edgeable security workers.

Then, as the studies are repeated and improved, insurance companies could use the ROSI numbers to create “hacking insurance,” with adjustable rates based on what security you employ. Dave O’Neill will be one of the people writing those insurance plans over the next year. Currently, as vice president of e-commerce solutions, he writes plans for general e-commerce insurance for Schaumburg, Ill.-based Zurich North America. Today, he confesses, the rates for such plans are mostly set by guesswork. Zurich bases its premiums largely on a 58-question yes-or-no survey, with questions such as “Are security logs reviewed at least daily for suspicious activities?”

“From our perspective this will change by the end of 2002. It will be a whole different landscape. We’ll know much more scientifically how to do this,” says O’Neill. “What it boils down to is getting credible data.”

The insurance industry in all likelihood will be the engine that drives both the science of ROSI and the technology of security. All other factors being equal, the insurance discounts will eventually make one Web server a better buy than another. Software vendors will be forced to fix the holes in their products in order to benefit from lower premiums.

In fact, that is precisely what happened with fire sprinklers. Shortly after Parmalee’s fiery demonstration, British insurance carriers began offering discounts to mill owners who bought sprinklers and deeper discounts to owners with more advanced sprinkler systems. Naturally, insurance rates rose on mills without them.

Ultimately, because it made no business sense not to invest in fire sprinklers, everyone had them. And mill owners could stop thinking about fires and start thinking about their business. **CIO**

How do you justify security investment? Let Senior Writer Scott Berinato know at sberinato@cio.com.

For More Information on the Economics Behind Security

A good primer on economic terms and techniques, including concepts such as indifference curves.

Stanford economist Kevin Soo Hoo’s thesis on quantifying infosecurity. It’s a little math-heavy, but it contains excellent data on the history of the problem and a proposed model for fixing it.

The CERT website has an entire page devoted to emerging research on survivability and the quantification of it. It includes the research highlighted here. **—S.B.**

experts such as Georgetown’s Denning believe that those studies are the beginning of a golden age in information security, with the potential to change every aspect of security—from how it’s built, to how it’s perceived in the enterprise, to how it’s paid for.

Such research could set off a chain reaction. First, ROSI numbers could be used to convince executives to invest in security, thereby spurring the development of new technologies and the hiring of more knowl-

CIO.com

Will these formulas work at your company? Go online to **TALK BACK** at www.cio.com.

OVER 1,500 COMPANIES USE DATAMIRROR TO INTEGRATE THEIR DATA.

REAL-TIME DATA INTEGRATION
WITH A DIFFERENCE.

IT'S FAST. IT WORKS.
WE SUPPORT IT. YOU CAN AFFORD IT.

EXPERIENCE THE DATAMIRROR DIFFERENCE.

- INCREASE THE FLOW OF INFORMATION TO EMPLOYEES, CUSTOMERS AND PARTNERS.
- BROAD SUPPORT FOR MULTIPLE COMPUTING PLATFORMS, DATABASES AND XML.
- ZERO PROGRAMMING REQUIRED FOR RAPID IMPLEMENTATION AND MAXIMUM ROI.
- SOLUTIONS BACKED BY EXTENSIVE INTEGRATION EXPERTISE AND GLOBAL SUPPORT.

VISIT WWW.DATAMIRROR.COM/ABERDEEN
TO RECEIVE YOUR ABERDEEN GROUP PROFILE:

THE INTEGRATION CHALLENGE: REAL-TIME CAPABILITIES HELP CLIENTS COMPETE

FOR MORE INFORMATION CALL 1 800 362-5955 OR VISIT WWW.DATAMIRROR.COM

DataMirror®
The experience of now.™

Case Files: Empire Blue Cross and Blue Shield

► RELATIONSHIP MANAGEMENT ◀

KNOWLEDGE MANAGEMENT

PROJECT MANAGEMENT

VALUE PROPOSITION

COMPANY INFO

FOUNDED

1935

REVENUES

\$4.2 billion

HEADQUARTERS

New York City

EMPLOYEES

6,500, plus 1,800 independent brokers

CUSTOMERS

29,000 corporate customers and multiemployer groups, representing 4.3 million individual members

MISSION

To provide health insurance coverage

URL

www.empireblue.com

CRM OBJECTIVE

Streamline manual sales and enrollment processes through Web-based sales-force automation software

THE PLAYERS

DAVID B. SNOW JR.

President and COO

KENNETH O. KLEPPER

Senior Vice President, Systems, Technology and Infrastructure

STEPHEN BELL

Vice President of E-Business Operations

THE EXPERT

WENDY CLOSE

CRM Research Director, Gartner

Smooth Selling Ahead

Empire Blue Cross and Blue Shield slashed its sales cycle from 27 days to just two or three with the help of sales-force automation software **BY SIMONE KAPLAN**

THE HEALTH INSURANCE industry is one of the most complex on the planet. With hefty government regulations, it's a tall order to offer high-quality coverage efficiently. And for Empire Blue Cross and Blue Shield of New York, which relies heavily on independent brokers to generate sales, success depends on making its product more valuable, more convenient and easier to sell than the competitor's.

Empire took a serious look at its sky-high administrative costs and convoluted sales and enrollment process, and realized it had to streamline. Having a paper-based, delay-filled sales process wasn't exactly endearing the company to brokers. And the practice of generating more than 60 copies of each new client's enrollment forms was hardly helping Empire's bottom line. An effort to reduce that paperwork evolved into a Web-based sales-force automation system that empowered Empire's network of independent sales brokers to serve customers efficiently.

A Complex Sales Process

As the largest health insurance provider in New York, Empire manages more than 29,000 corporate employer accounts, of which about 26,700 are small to midsize companies employing 50 people or fewer. Empire services these "community rated" employers via some 1,800 registered independent sales brokers. Because each customer's needs are different, brokers must produce customized coverage estimates for each one. For example, some companies want preferred provider plans, and some want health maintenance plans. Each plan has different "riders," or options, attached, such as vision care or prescription coverage.

In the past, a broker would call Empire's broker relations department, pass along the customer's specs and then wait for Empire to calculate a price quote. The broker then relayed the quote back to the customer, who would either accept it or ask for modifications—in



"We had 33 redundancy audit checks—where we go over information to make sure it's correct. We had created this nightmare."

—STEPHEN BELL, VICE PRESIDENT
OF E-BUSINESS OPERATIONS,
EMPIRE BLUE CROSS AND BLUE SHIELD

enrollment paperwork, filing it within 11 departments at Empire. Even then, fully 67 percent of the forms had to be returned or double-checked by phone with the brokers because of errors or omissions.

Since they couldn't generate quotes themselves or process the paperwork, the brokers were completely dependent on Empire's broker relations staff, who were around only during normal business hours. As a result, it took about 27 days to shepherd a new customer through the sales and enrollment process. Then employees had to wait another week to 10 days to get their ID cards. "Most clients look immediately for the ID cards," says Vazoulas. "If they're delayed, the clients don't feel secure because they don't know if their health plan is in effect."

The Quest to Streamline

In late 1998, Stephen Bell, vice president of e-business operations, and Kenneth O. Klepper, senior vice president of systems, technology and infrastructure, began developing a "print on demand" system to reduce the vast mountains of quickly outdated benefits brochures and contracts that sat in storage rooms. In the process of working out the details, Bell and Klepper got a glimpse of how inefficient the sales and enrollment process really was. In April 1999, Empire brought in David B. Snow Jr. as COO. With

which case the broker had to contact Empire again and request a revised quote. When a quote was finally accepted, the broker filled out and filed one set of paperwork while the customer filled out a group application and sent it directly to Empire. Whenever Empire revised its plan structure, brokers found themselves with outdated enrollment forms.

"We would use the forms we had on

hand, submit them to Empire, who would reject them because our forms were outdated," says Thomas Vazoulas, an account broker with Corporate Consulting Services, an independent consultancy based in New York City. "Then we'd have to fill out more forms. It was discouraging to have to use up that much time just to redo forms and get the process done."

The company then made 60 copies of the

a list of core business practices in hand, he zeroed in on sales and enrollment as an area ripe for change. "It was labor-intensive, slow and cumbersome," say Snow, who now serves as both president and COO.

First, Snow and his team took a hard look at the existing paper-based process. They took over a conference room and created a color-coded map of the sales process; no one had ever before tracked it from start to finish. "It was like a grapevine," Bell says of the process map. "It just got bigger and bigger. For the first time, we realized that there were 33 redundancy audit checks—where we go over information to make sure it's correct—built into the process. We had created this nightmare."

They began by eliminating all the loops and unnecessary steps, such as the need for brokers to keep calling the company for revised quotes. "Wherever there were repeats, we tried to eliminate them," Bell says. The team managed to cut the essential steps from 80 to 40. That was the easy part, he says; then came the daunting task of finding an application to make the streamlined map a reality.

Because Empire's sales channel was so complex, Bell decided that Empire couldn't go with an off-the-shelf application. And he quickly saw the value of moving the process to the Web. Bell and Klepper hired Firepond of Waltham, Mass., to customize its proposal configurator and develop a quote engine and group enrollment process for Empire. Because Empire lacked in-house experience and resources for handling an enterprisewide application ("Mostly, we knew about mainframes," says Klepper), they kept the IT department close to the project so that staffers could learn from the experience. The department also had to integrate the application with Empire's legacy mainframes, a process that was tedious but critical, according to Bell.

Empowered Brokers

Empire's Broker Services Application, which includes the quote engine and proposal configurator and enables online group enroll-

ment, went live in October 2000. The browser-based quote engine frees brokers from having to call Empire to crunch numbers every time they need a quote. Instead, they can now enter the relevant customer data themselves online, and an automated formula generates a quote in a matter of seconds. The proposal configurator lets the brokers go online to create custom proposals according to each customer's requirements, pull together current information about all the plan options and riders, and print all the relevant, up-to-date informa-

tion based on the customer's specifications.

If the client isn't satisfied with a particular quote, the broker can go back online and change the specifications. Upon making a sale, a broker no longer has to wade through piles and piles of paper, but can go online to enroll a new account. The password-protected system also lets agents maintain customer information online, where it's accessible around the clock.

Because Bell and his team drafted a panel of computer-savvy brokers and solicited their input throughout the applica-

EXPERT ANALYSIS

THINKING LIKE A BROKER

BY WENDY CLOSE

THE EMPIRE BLUE CROSS AND BLUE SHIELD case study offers several examples of best practices that companies should follow when deploying technology to the sales organization.

The first thing Empire did right was that it examined its sales process. Many companies automate flawed sales processes. A poorly defined or flawed sales process is a common cause of failed sales technology rollouts. An organization must seek to develop a common set of "winning" sales processes. Only then can technology be applied to reinforcing the selling process.

The next correct move Empire made was that it focused on automating key steps in the sales process from the brokers' perspective, not management's perspective. Many sales technology rollouts fail because they do just the opposite—focus on management needs, with not enough emphasis on salespeople and customers. Automating activities to close more sales by removing barriers should be the primary target of any sales automation effort, and not improved pipeline, forecasting and reporting mechanisms for management. If the application does decrease the time a customer has to wait for enrollment, then it's a real win as customers benefit from the technology also.

The third smart move Empire made was that it picked compelling sales applications to deploy—a sales configurator and a proposal generator. Sales configurators not only provide cost savings (by reducing order rework expenses associated with misconfigured orders), they also have the potential to significantly enhance revenue. Gartner estimates that product configuration deployments will provide sales organizations with at least a 2 percent increase in both win rates and order size, resulting in an increase of 5.4 percent in revenue. We also estimate that enterprises adopting a proposal generation system will cut in half the time it takes to create, edit, approve and produce a professional proposal.



Wendy Close, a CRM research director at Gartner, is a CRM generalist with 10 years of experience. She can be reached at inquiry@gartner.com.



Intrusion Prevention by Symantec.

Hackers, saboteurs and cyberthieves can find a new hobby. Symantec Enterprise Security can handle their best (and worst) efforts, protecting your entire network—servers, remote users, Web applications, even desktops. With the technology, the services and the knowledge to bring it all together, Symantec Enterprise Security keeps the bad guys out and your company safe. More info? Visit www.symantec.com/ses3 or call 800-745-6054 x 9AZ3.



tion development process, they wound up with a system that has made life easier for the brokers. By Oct. 31, 2001, all of Empire's 1,800 independent brokers had registered on the site, Bell says. When the site went live, Empire aimed for getting 15 percent of the brokers to use its self-service functionality. As of October, more than 45 percent were regularly generating their own quotes online.

Empire agents using the site now handle an average of 45 percent more quotes; Vazoulas says that while he used to process 20 quotes a day, he now handles 50. Most important, the enrollment process that once dragged out over 27 days now takes just two to three days to complete online. (Brokers sticking with the paper-based system, however, still have to deal with the time lag.)

"Everything that a customer could ask is answered up front with the system," Vazoulas says. "The printed quote gives a summary of the entire contract with benefits and riders and details that wouldn't otherwise be available unless we had a brochure on hand, and those are never up-to-date. The fact that they can see it up front

and go over their plan line by line makes it much easier for them." Because he's already sent clients custom proposals created with the proposal configurator, when Vazoulas visits them face-to-face, about half have already made up their minds to buy Empire's

ters at the World Trade Center on Sept. 11. The company used the sites to reassure brokers, members and physicians that Empire was up and running and to post contact information for its other offices.

In 2002, the company plans to create

"I can usually tell how happy the customer is based on how much negative feedback I get. With this system, I get no negative feedback."

—THOMAS VAZOULAS, ACCOUNT BROKER, CORPORATE CONSULTING SERVICES

services. As a result, he sells on average twice as many Empire policies now than he did before. From a broker's standpoint, it's an easier sale with the new technology, he says.

Empire measures customer satisfaction through mail surveys, but Bell says it's too early to gauge whether the company's Web strategy has had a quantifiable impact on customer relations. Although assessing a client's level of satisfaction can be difficult, Vazoulas says brokers are not hearing many complaints about the speed of enrollment.

"I can usually tell how happy the customer is based on how much negative feedback I get," Vazoulas says. "If there's something they don't like, I'll hear about it up front. But with this system, I get no negative feedback."

In the first six months of 2001, Empire's small-group sales increased 274 percent compared with the same time period the year before, although the company isn't sure how much of that increase can be attributed to the new enrollment process. Plans to run an analysis have been shelved, Bell says, in favor of going forward with updates to the site.

In fact, just two months after rolling out Broker Services, the company launched a website that lets individual members access and update their personal data, check claim status and payments, and request ID cards. Last summer, it launched a beta version of a portal for physicians. A similar site for employer groups was slated for completion by the end of 2001. These portals proved invaluable when Empire lost its headquar-

a broker services application to handle customers with more than 50 employees. Empire will also allow brokers to renew contracts online. This time, the IT department is doing the development in-house.

CIO.COM

Read more customer relationship management Case Files on our **CRM RESEARCH CENTER** at www.cio.com/crm.

CRM AT EMPIRE

PROCESS CHANGES

Instead of depending on Empire staff to generate and modify quotes, independent brokers can now get sales quotes immediately on the website. Brokers can also enroll customers online, eliminating the need for Empire to make 60 paper copies of enrollment documents.

ENABLING TECHNOLOGY

The Firepond SalesPerformer Configurator and Channel SalesPerformer of Firepond's SalesPerformer Suite.

PAYOFF

Decreased average group enrollment time from 27 days to two or three days; agents using the site now process an average of 45 percent more quotes.

Empire is also concentrating on convincing the independent brokers who are not yet using the self-service functionality of the original Broker Services Application to give it a try. If brokers still call Empire for quotes, they are encouraged to use the Web service by the Empire sales representatives, who use the portal to dispatch quotes. "Like with any radical change, it's just hard to get people to go with it," Bell says. A lot of brokers have told him that they're eager for more functionality on the site—they want to be able to enroll individual employees online. Empire is working on that right now, Bell says.

But getting the most out of the system is an ongoing process. "It's a matter of focus," he says. "We are listening to what people want." **CIO**

Send ideas for customer-focused case studies to casefiles@cio.com. Staff Writer Simone Kaplan can be reached at skaplan@cio.com.



SIGNED.
SEALED.
DIGITALLY
DELIVERED.

When your business is online, sealed documents, signatures and handshakes
no longer work. Let RSA Security bring authenticity to your e-business.



The Most Trusted Name in e-Security®

www.rsasecurity.com

WIRELESS THAT WORKS

How **five** companies jumped **five** hurdles of wireless technology: budgetary constraints, security, bandwidth, scalability and resistance to change

BY DANIELLE DUNNE

THE PROMISE OF WIRELESS is information at any time, anywhere. But it remains just that—a promise. In the real world, wireless applications come with a long list of problems and a short list of solutions. Five of those solutions are presented in the following case studies. →→

Problem: Budgetary Constraints

Solution: Get What You Need, Not What You Want

How a small city uses wireless to keep it from washing out to sea

The island city of Richmond, British Columbia, has a problem. The city, which sits in the middle of the Fraser River, is flat as a pancake. If the river rises too high, the city's 160,000 residents could be washed out to sea. The first line of protection against that fate is a system of 180 pumping stations that work around the clock every day of the year, pumping water off the island back into the river.

For years, Richmond city workers employed a simple method of monitoring the pump stations: They drove around town in pickup trucks and looked at them. If the red light atop the pump was flashing, they knew something was amiss. If the light wasn't flashing, the worker would move on to the next pump.

Edward Hung, the city's IT manager, knew the process was labor-intensive, to say the least. He knew that a better solution would be to have the pumps automatically report their status to a central computer. And he knew that an even better solution would be a Web-based application to analyze the data and make it available on an intranet that could be accessed from computers all over town.

**Edward Hung,
IT manager of
Richmond,
British Columbia,
put city workers
on handhelds
that warn of
flooding from
the Fraser River.**



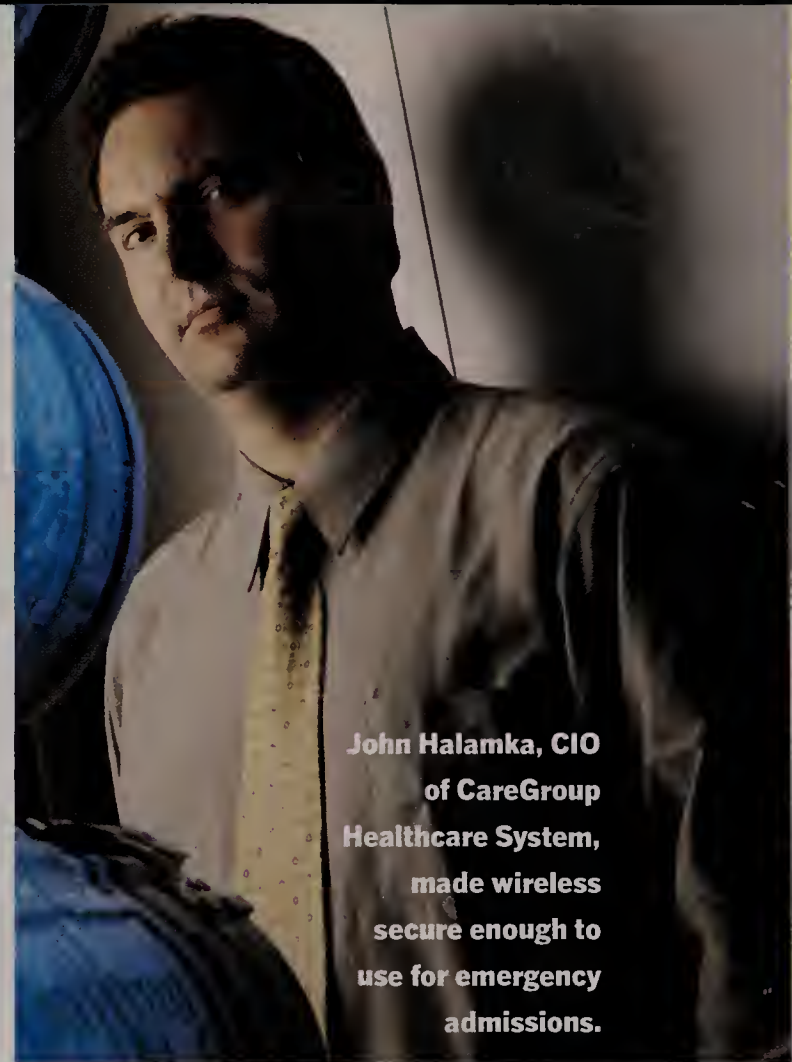
Hung worried that the cost of building such an application was beyond the reach of his meager municipal budget, but making sense of the data was a priority—he had to do it. Hung put the project out to bid, and New York City-based business intelligence company Information Builders said it could do it for less than \$100,000.

As it turned out, that was a good decision. As the project got under way, Information Builders pointed out that for a few dollars more, Richmond could buy handheld devices so that the critical pump information could be received by city workers at any time, any place.

Hung was able to keep the project under \$100,000 and give his engineers access to real-time information about the status of the pumps.

The city was able to use wireless devices without breaking the bank because Hung and his team kept the project simple. Instead of integrating all the city's ERP and workflow applications with the new pump-monitoring program, they pushed only the data from the pump systems.

Today, Richmond's five city engineers can receive constant updates on the status of the pumping system, and especially in the spring, the entire town can rest easier. ■



**John Halamka, CIO
of CareGroup
Healthcare System,
made wireless
secure enough to
use for emergency
admissions.**

Problem: Security

Solution: Secure Socket Layer Encryption

A Boston emergency room sends patient information through the air

There are 47 patient treatment rooms in the new emergency department of the Beth Israel Deaconess Medical Center in Boston, but there are only three laptops used for patient registration. That is not, however, a problem; it's a plan.

The three laptops move easily from bed to bed, using a wireless LAN to connect to the network, saving the hospital money and helping to knock a half hour off the time it takes for most patients to check in.

In many businesses, using a wireless LAN is a no-brainer; but in a hospital, it is a major accomplishment. That's because the wireless LAN standard 802.11b, which dictates the parameters for speed of data, access points and other technical specifications, is famous for its security holes, and hospitals are famous for their need for security. In fact, all U.S. hospitals are governed by the Health Insurance Portability and Accountability Act of 1996 (HIPAA), a federal law that strictly

Wireless

protects the privacy and confidentiality of patient records.

The technology people at CareGroup Healthcare System, which manages that hospital and five others, were well aware of the security risks when they set out to deploy laptops in Beth Israel Deaconess's ER. They had done their homework and studied reports, such as the recent warning from Stamford, Conn.-based Gartner that by the end of 2001, 30 percent of enterprises would have serious security exposures stemming directly from wireless LAN deployments.

"WEP [wired equivalent privacy], the standard security protocol for 802.11b, is not very secure," admits John Halamka, CIO of CareGroup. "So we do three things to make it safe. First of all, we do use WEP, but we do encryption via HTTPs [adding a secure socket with an additional layer of encryption to each address], and then we register the unique address of every network card in the wireless receiver so that if you are walking by this building you can't intercept our transmissions."

Phillip Redman, research director at Gartner, agrees that secure socket layer encryption should do the trick. "With Web-based technology, secure socket layer encryption is a very secure way of transferring information," he says.

At CareGroup, all network users must log in to get on the hospital's system, and the IS group carefully monitors all traffic to weed out any lurkers.

Because of those measures, Halamka considers his wireless LAN as safe as one can be with the current state of wireless technologies.

Today, when patients are admitted, their information is logged in to a wireless laptop, and a summary of their record is instantly displayed on the ER's whiteboard, an electronic screen that tracks every patient's medical status, location, doctor, labs, EKGs and more. The same vital information is also available on all the computers in the ER, where it can help doctors administer the best treatment more quickly and reduce the likelihood of errors based on misinformation. ■

Problem: Bandwidth

Solution: Slim Down Applications

How a mortgage lender got more information into less space

For eight years, Jim Pathman, CTO of Option One, a wholesale sub-prime lender and subsidiary of H&R Block based in Irvine, Calif., thought about putting salespeople on laptops. The company's 200 account executives were spending more than 80 percent of their time in the field, and they relied entirely on phone and fax. Pathman knew that laptops would help them obtain important loan information, such as a pricing application, but he worried that the cumbersome technology was more trouble than it was worth. He imagined them wandering around a gas station with a briefcase sprouting spaghetti wires, searching desperately for a phone jack.

Then wireless appeared on the scene, and Pathman began to reconsider. Still, the documents that salespeople routinely received—such as 12-page faxes and other reports indicating the status of loans—were so large that downloading them over a wireless connection would take

forever. What Option One needed was a wireless connection that could run large applications and move large documents quickly, and there weren't any. So the company found a way to make large documents small and large applications simple enough to work with a wireless connection.

In doing so, it had to reduce the capabilities of several applications, such as the bandwidth-hogging loan pricing engine.

The five items that survived were: its loan-pricing engine, underwriting guidelines, e-mail, send-and-receive fax applications, and reporting tools.

In April, Option One salespeople finally got their laptops and their initiation to wireless communication with all of its warts, such as slow data transmission.

Option One CTO Jim Pathman knew that better access to information would help mortgage sales.

"You get used to knowing what the turnaround is," says Kathleen Kaylor, an Option One account executive. "If you are synchronizing into the VPN wirelessly, you know that it is going to take a while and you can do something else while it is syncing."

Pathman says salespeople have about 15 percent of the functionality they will have two years from now. The system will become faster and more personalized. The laptops will be tied in to the workflow system, and there will be real-time notification of action items on specific loans. Option One also hopes to combine the two applications used to give loan estimates.

Option One has even started to see signs of a return on its \$750,000 investment. The up-to-the-minute information on loans and loan rates allows salespeople to make immediate decisions. In at least one case, says Pathman, a salesman's wireless connection allowed him to quickly match the rate offered by a competitor.

"From a revenue and commissions perspective," says Pathman, "you only need to do one or two more loans and it pays for itself." ■





BMC Software is an Equal Opportunity Employer. BMC Software, the BMC Software logos and all other BMC Software product or service names are registered trademarks or trademarks of BMC Software, Inc. All other trademarks and registered trademarks belong to their respective companies. © 2001 BMC Software, Inc. All rights reserved.

Problem: Scalability

Solution: Efficient Systems Integration

A hospitality company gets the message around the world

When Carlson Hospitality—which franchises, owns and manages hotels such as Country Inns & Suites, Radisson and Regent—considered getting rid of its binder-size monthly status reports and replacing them with sleek handhelds that would deliver real-time information about occupancy, VIP visits and overbooking, the company knew the project wouldn't be a walk in the park. Any system that the company built would have to eventually work at 750 hotels in 55 countries and accommodate more than 2,000 users. For many global corporations, the very thought of offering so many far-flung people access to so much information would place the project on the chopping block, ready to be scaled down, but Carlson scaled up.

During the past three years, the Minneapolis-based company spent \$21 million rearchitecting its core systems and integrating data from at least six databases. And while that restructuring was not done with a vast wireless project in mind, the resulting order made it possible for the technology team to push the hospitality company's key indicators out over a wireless LAN, as well as a wired network. The integration was vital to the wireless project because it organized the data (occupancy rates, pricing information and so on) from all the company's different databases in ways that will someday make worldwide distribution feasible.

"That new architecture was a prerequisite to having the data available to work with," says CIO Scott Heintzeman.

But Heintzeman and his team weren't home yet. They still had to build an application that would make sense of the information as it was presented on a handheld Compaq Ipaq. And of course, Carlson had



Carlson CIO Scott Heintzeman hopes to use wireless to connect 2,000 users in 750 hotels.

to set up wireless LANs in each hotel where the wireless system would be used.

Last spring, the company began a trial of the new system in a Minneapolis hotel and quickly expanded the test to four other locations. Managers in those hotels use their desktop computers to select the pieces of data, such as occupancy rates, and set up alerts for the key indicators, such as a sudden increase in demand. They then download the data to their handhelds so that they can access it from almost anywhere on their hotels' property.

Today, Carlson managers are pushing data to the handhelds in one of three ways. Most managers use a cradle to connect their handheld to a computer, some sync the data over a wireless LAN, and a few use AT&T's digital WAN.

In all, Heintzeman says, Carlson has put about 200 people on handhelds at a cost of about \$100,000. He reports that things are working well and plans to expand the program to at least 10 more properties in the coming year. ■

Problem: Resistance to Change

Solution: Patience and Compromise

How HVAC technicians came to terms with daunting technology

Roberto Amores had just about had enough. It was a blistering hot day, and the struggling air-conditioning system had just blown the fuses in the Atlanta office building where Amores was working as a heating ventilation and air-conditioning technician for United Maintenance. But the biggest problem for Amores wasn't the heat or the fuses, it was the new handheld that his company had given him to replace the paper and clipboard that he had used to keep track of his work. No matter what Amores tried, he couldn't seem to pick up a signal and make the new computer work. He climbed down from the roof, where he was working, and got in his truck. Nothing. He tried driving around the block. Nothing.

On his first day using wireless, it took Amores three hours to pick up a signal, get his service call and fill out the report. One problem was that the pop-up window kept asking him if he wanted to do things that he didn't want to do. He tried to remember what he had been told in the training class, and he just became more confused.

Amores was hardly alone. Most of the 30 technicians who United Maintenance had outfitted with handhelds were struggling with questions like what to enter, exactly, when

Crystal Decisions, Crystal Reports, Crystal Enterprise, and Crystal Analysis are either registered trademarks or trademarks of Crystal Decisions, Inc. All other trademarks or registered trademarks are the property of their respective owners.

WHAT KIND OF DECISIONS ARE REQUIRED IN TODAY'S BUSINESS CLIMATE? SMART ONES.

Arriving at a smart business decision can happen anywhere. But the process first requires information; information that needs to be gathered from multiple sources, then analyzed and shared before it can be used to your advantage.

The challenge today is twofold. One: how do you get the infrastructure in place to access disparate data sources and create and distribute actionable information? And, two: also meet the demands to reduce costs and increase productivity?

You turn to Crystal Decisions™. Our enterprise-wide reporting, analysis and web-based information delivery solutions have a proven track record of helping our customers better utilize information to competitive advantage and profit.

At Crystal Decisions, the makers of Crystal Reports®, we've met the standards of our key partners like SAP, IBM, Microsoft and Baan. We're confident we can meet yours. To find out how, visit us at: www.crystaldecisions.com/ent/006/ or call 1-866-821-3525.

Access. Analyze. Report. Share.™


crystal decisions™
A SEAGATE COMPANY

EMPLOYEES OBJECTED to an automatic time-stamping of all messages. United Maintenance changed the function.

the real reason they wanted to put a job on hold was not among those listed on the scrolling screen.

Ralph Hawkins, the service manager at United Maintenance, heard the grumbling of his technicians and got to work on a solution. Hawkins scheduled a series of meetings, three to four weeks apart, where technicians could swap stories about their frustrations and solutions for the handhelds. Other managers attended the meetings, and when they learned of a problem that could be solved by altering the technology, they took action. In one case, for example, employees objected to an automatic time-stamping of all messages because it made them feel like their computers were monitoring them constantly. United Maintenance changed the function so that it allowed the technicians to enter the time that a message was received or an action taken. In another, management learned that technicians were writing in the names of customers who were not on hand to sign off on repairs, which meant that they were unwittingly committing acts of perjury. The technicians were given a quick lesson in the law.

While the results were not immediate, the meetings did help the technicians feel more comfortable with wireless technology. So, of course, did the passage of time. During the next several weeks, frustrations decreased, and new skills, such as typing, increased.

"You can go to all the training classes you want, but what really works is just getting used to it," Amores says. "Once you figure out what it does, it gets a lot easier."

Today, the technicians at United Maintenance use the handhelds to record everything they do in the field. Service calls are dispatched through the handhelds, service



Ralph Hawkins, service manager for United Maintenance, organized meetings where handheld users could swap horror stories and solutions.

is recorded, and technicians make sure that the customers sign the machine at the completion of the call. As soon as the signature is captured, the call is taken off the dispatch screen and a bill is automatically printed.

CIO.com

Ask the Source: For the next two weeks, John Halamka will answer your questions online about **WIRELESS & SECURITY**. Go to the Web Connections box on CIO.com. Also, check out "The ABC's of Wireless" at www.cio.com/wireless.

The new wireless system has reduced the billing cycle at United Maintenance from two to three weeks to two to three days. It also ensures the company that the technicians have filled out their paperwork and saves the technicians the time they used to spend bringing their records into the office.

"Our guys were hesitant at first," says Hawkins. "It was harder for the older guys; they barked at it but finally got the hang of it—that part was tough." **CIO**

Danielle Dunne is a Web writer for CIO.com. E-mail her at ddunne@cio.com. For a different take on fixed wireless, see "The Last Mile—Wireless Style," Page 84.

Crystal Decisions, Crystal Reports, Crystal Enterprise, Crystal Ball, and Crystal Reports are registered trademarks or trademarks of Crystal Decisions, Inc. All other trademarks or registered trademarks are the property of their respective owners.



WHAT KIND OF DECISIONS DOES MICROSOFT® MAKE? SMART ONES.

Arriving at a smart business decision can happen anywhere. But the process first requires information; information that needs to be gathered from multiple sources, then analyzed and shared before it can be used to your advantage. Microsoft knows this.

That's why they chose Crystal Decisions™. Microsoft required cutting edge reporting technology for its recent Visual Studio® .NET release. They turned to Crystal Decisions, the industry leader in enterprise reporting to provide this functionality for their customers.

At Crystal Decisions, our enterprise reporting, analysis and information delivery solutions have a proven track record of helping our customers and partners' customers increase productivity and reduce IT costs. And our strategic partnerships with companies

like Microsoft, SAP, IBM, and Baan ensure our solutions integrate seamlessly with your existing applications. We met Microsoft's demanding standards. We're confident we can meet yours. To find out how, visit: www.crystaldecisions.com/ent/006/ or call 1-866-821-3525.

Access. Analyze. Report. Share.™



crystal decisions™

A SEAGATE COMPANY

LIVING WITH TERROR

When it comes to dealing with terrorism, American companies have a lot to learn from European businesses BY MALCOLM WHEATLEY

Nearly six years before Sept. 11, 2001,

Citibank, the Pittsford, N.Y.-based multinational financial services company, became starkly aware how vulnerable its operations were



The bomb the IRA set off at London's South Quay in 1995 injured 34 people.

to terrorist attack. On the evening of Friday, Feb. 9, 1996, as weary office workers in London's Canary Wharf area were heading home, IRA terrorists telephoned a series of coded warnings to media organizations about a bomb they had placed. As police hastily cleared the target area, the device exploded, killing two people, hospitalizing more than 100 others and damaging several buildings so badly that they subsequently had to be demolished.

The advanced warning and the fact that many workers had already left for the weekend undoubtedly contributed to the low number of fatalities. But so too did the fact that the building that took the brunt of the blast housed Citibank's European backup hot site with 1,000 empty desks set up and ready to be used should any one of Citibank's European offices—staffed and managed by Europeans—go out of action. Had the building not been purposely left empty, the police believe that the casualty toll would have undoubtedly been far higher.

For Citibank, which had operations in some 14 European countries,

Reader ROI

- ▶ Learn how European companies protect themselves
- ▶ See how much better prepared London is than New York City
- ▶ Discover the key factors for maintaining contacts



A woman passes a mural in strife-torn Northern Ireland, September 2001 (top). The aftermath of a bombing outside a Madrid, Spain, bank by the Basque separatist group ETA, June 2001.



PHOTOS LEFT AND RIGHT BY AP PHOTO SERVICE

the blast was an unlucky reminder that—despite careful contingency planning—there's no safe haven from terrorism's disruption. While few disaster plans start with the premise that the backup facility may be devastated, throughout Europe—a region that has an unfortunate history of terrorism—planning for debilitating disasters is considered a normal part of business.

And there's a growing sense that American companies are only now waking up to the same realization. "Businesses in the U.S.

have been extremely complacent about terrorism," says Professor Wendy Currie, director of the Centre of Strategic Information Systems at Brunel University in Uxbridge, England. "It's very different from the attitude in some parts of Europe—such as London, Madrid and Paris—where people tend to be subconsciously on their guard."

Consequently, American companies have a lot to learn from companies that operate in Europe. Certainly, the events at the World Trade Center and the Pentagon demonstrate the enormous disruption terrorism can cause. But, as European-based companies have learned, preparations in the form of backup sites and contingency plans are only part of the equation. Just as important is the adoption of a mind-set that acknowledges the threat of terrorism yet at the same time insists on a determination that business will go on.

Revamped Plans

Despite the devastation at Citibank's hot site, not every company at Canary Wharf was so fortunate as to merely have empty desks disabled. While Citibank scrambled to find an alternate backup facility, other companies at Canary Wharf were addressing more fundamental issues. Like getting their company up and running again.

The Builder Group, a publisher of construction and property magazines, is one example. Its premises, too, were damaged so badly that they ultimately had to be pulled down. Yet unlike Citibank, The Builder Group had no standby facilities into which it could move. Without a backup site, and without access to its computers for five days while police and fire officials searched for clues, employees had to re-create their work from that Friday before the bomb detonated. While no magazine issues suffered, The Builder Group has since revamped its antiterrorism disaster plans, having learned bitter lessons from the experience.

Chief among those, says Bob Durrant, the company's systems manager, is the recognition that the data held on office computers is more fragile than the hardware itself. Provided that the equipment isn't totally destroyed, he says, it's perfectly feasible to clean hardware up and bring it back into use, albeit temporarily. "It's difficult, but at least you don't lose everything like you do with fire or flood," he says. "From that point of view, it's a more survivable event."

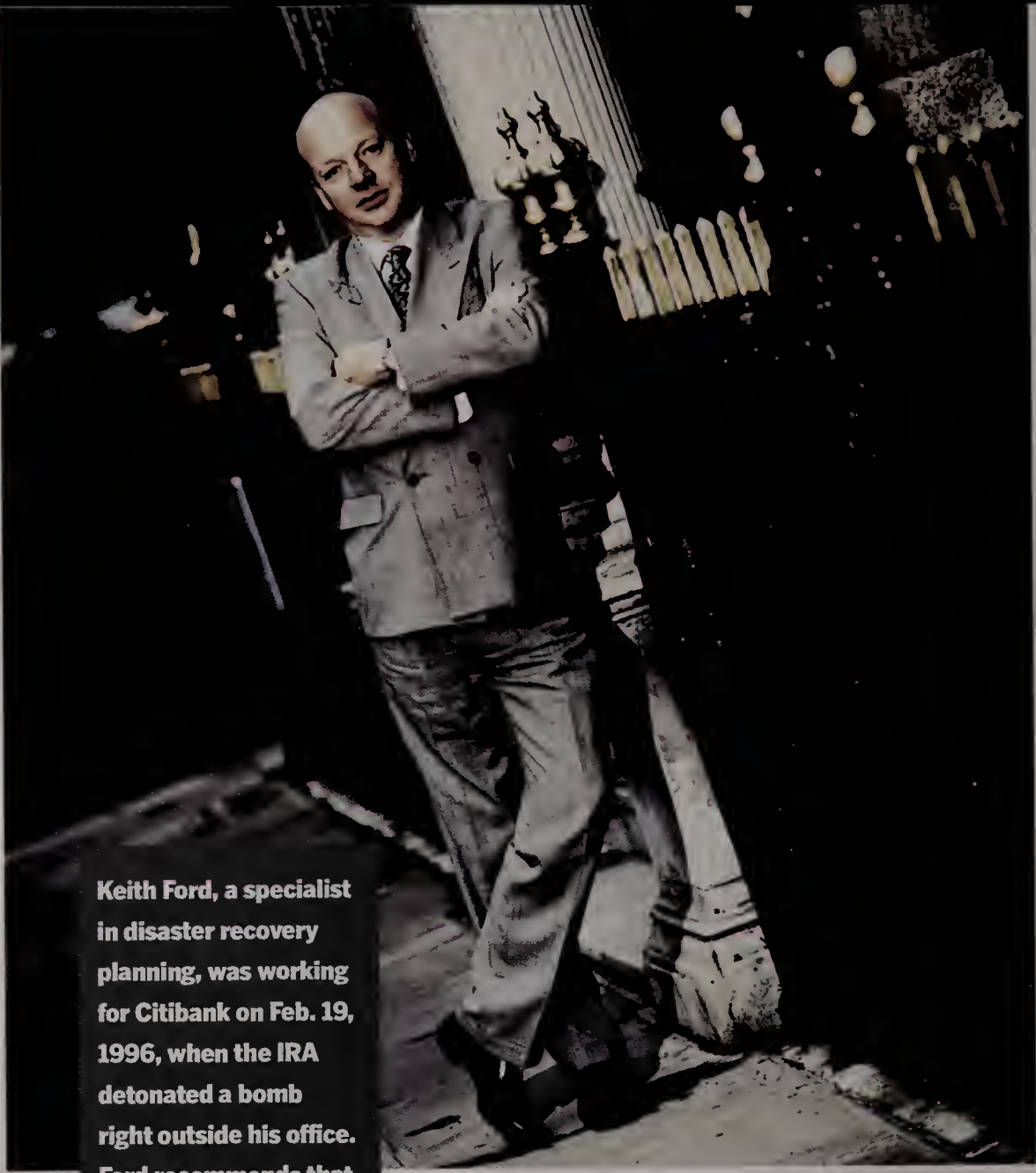
While The Builder Group had long kept backup data offsite, it also now keeps hardware offsite on which to run that backup data. Now, says Durrant, disaster plans call for The Builder Group to keep a general-purpose server on standby at an undisclosed offsite location. Preconfigured and ready to go, it sits there just in case.

Lightning Strikes Twice

For Citibank, more upheaval was to come. Ten days after the Canary Wharf bombing, an IRA terrorist prematurely detonated a bomb on a red double-decker bus driving down London's Strand. The bomb went off right outside another Citibank location—ironically, one containing the office of independent IT consultant Keith Ford, a specialist in disaster recovery planning who was then engaged in advising Citibank on how to protect its operations.

Taken together, the two bombs composed something of a baptism by fire—but also an invaluable opportunity for Citibank to test its plan against real-life disasters. From the disaster planning perspective, the first bomb was “a nightmare scenario,” says Ford. “Disaster planning is all about thinking the unthinkable—but when you talk about possible scenarios, a bomb taking out your backup hot site has to be fairly unlikely.” Even so, the impact on day-to-day operations was limited. The second bomb, despite causing less damage, affected an operational unit.

The result for Citibank was twofold: An affirmation that previous plans worked, along with new lessons on how to improve them. Unlike at Canary Wharf, damage to computer equipment was light. Citibank had installed blast-proof windows in the building as insurance against precisely that sort of eventuality. Such windows contain a laminate layer in a glass “sandwich,” so that the window shatters but does not implode. That was the good news. Not quite so welcome was the associated learning point: It was to be some days before access to the building could be regained—and only then because of strong links



Keith Ford, a specialist in disaster recovery planning, was working for Citibank on Feb. 19, 1996, when the IRA detonated a bomb right outside his office. Ford recommends that American business executives make sure their plans “dovetail with those of the civil authorities.”

ities to go over their plans for post-terrorist attack access to business premises.

To Ford, whose clients have included American-based companies with facilities in the United Kingdom, such as Capital One and Prudential, such dovetailing is essential if a plan's goal is—in

Prussian General Helmuth von Molke's immortal words—to survive contact with the enemy. “Typically, companies' disaster plans are event-based, or action-based, and don't go into enough detail at the ‘who’ level,” Ford says. For example, companies usually overlook the fact that just a handful of preauthorized people will be allowed access to a disaster site and then only for a limited period. “Plans generally assume that a thousand people can go about their business as before—and suddenly you have to confront the fact that only the facilities person, a technology person and a disaster recovery person are allowed past the yellow tape [cordons],” he says.

Business continuity embraces much more than just a company's computers.

between Citibank and London's civil authorities (Citibank's head of security was a former London police officer, says Ford). One of the largest companies involved in the attack, Citibank sent representatives to attend emergency planning meetings organized by London boroughs the City of Westminster and City of London, says Ford, who adds that many companies don't follow Citibank's practice. “Only when a bomb goes off do they then find that their own disaster recovery plans don't dovetail with those of the civil authorities,” he says. When given the opportunity, Ford recommends that American business executives meet with local author-

Getting in Touch

It's precisely that kind of stark realization that prompts survivors to recognize that business continuity embraces much more than just a company's computers. “Planning is vital, but you have to look beyond the IT issues to the business as a whole,” says Peter Lake, European business development director for Thomson Legal and Regulatory (part of the giant DC Thomson group),

We Heard You.



You asked **CIO** to help educate senior management on the business value of technology.
We heard you. And we're pleased to announce DARWIN.

DARWIN is the first magazine, written, edited and calibrated for business executives. Every issue demystifies technology for non-technology executives and helps them understand, identify and support technology options to achieve your organizational goals.

DARWIN covers all the technologies executives need to know, not just the Internet. From application software to ASPs, from encryption to ERP, hardware to hosting,

VPNs to vendor relations — everything it takes to use technology to solve business challenges.

DARWIN is FREE to qualified non-technology executives. Tell your team to apply for a Free Subscription at

www.darwinmag.com/subscribe

who as the managing director of Gee Publishing, another part of Thomson, saw his company's premises shattered by the Canary Wharf bomb. Although Gee Publishing had a disaster plan—and indeed, had three copies of it offsite—the process of putting it into practice proved highly educational.

Among the chief lessons: Keep any disaster plan concise. Once the senior management team started putting the plan into action on that Friday evening, Lake says, it soon became clear that the level of detail contained within its several hundred pages was simply too great. Typical of the sort of information that Lake now feels Gee didn't need to have was a section on how to set up an emergency team, which was simply too verbose to be useful. "In the event, you just get on and do it," he says. The original plan also assumed that the consultative decision making typical of day-to-day operations would continue postattack. "My style was markedly different from that used to run the company normally," says Lake. "Consensus was not as important as getting tasks done—so much had to be decided and quickly communicated."

Some of the most useful pieces of information in the plan turned out to be up-to-date telephone numbers—including weekend contact information—for key members of staff, suppliers, local utilities and emergency services. With urgent decisions to be made about where to relocate, those numbers saved precious hours in tracking down the right individuals and getting them onsite. As part of the Thomson group, which has extensive London operations, Gee had access to empty office space in which to relocate, but it contained no furniture or computers. Contacting staff quickly was therefore an urgent priority, says Lake.

Yet it became clear that there were gaps in the plan; critically, it contained no listings of home contact details for employees apart from the key members of staff involved in post-disaster decision making. "We had the information alright," says Lake, "but it was sitting in the personnel records and not held offsite."

What followed was a weekend of telephoning staff, plugging into people's social networks, finding employees home telephone numbers from individual colleagues and making contact that way. "By the Sunday night, we'd spoken to 108 out of the 113 employees." Thanks, he says, to heroic efforts on Saturday and Sunday in setting up such basic facilities as a telephone switchboard and

Seven Tips for Bomb-Proofing Your Disaster Plans

1 Keep disaster plans up-to-date, short and simple; you'll be too busy to plow through pages of unnecessary detail.

2 Store contact details for all staff offsite. Include weekend and vacation contact information—terrorists aren't 9-to-5 folks.

3 In addition to offsite backup data, maintain backup hardware offsite as well.

4 Install blast-proof windows—they're expensive, but worth it.

5 Meet with police and civil defense authorities to dovetail your plans with theirs.

6 Include in your plans what you'll do if only three or four key executives are allowed into your building.

7 Don't forget about physical security; for vulnerable facilities, consider more restrictive access policies.

—M.W.

arranging for calls to be rerouted to it, a skeleton crew of staff were able to answer the phone on the Monday morning following the explosion, though most staff stayed at home on full pay until the furniture and computers were installed in the new premises. If another bomb were to go off today, Lake says, the Internet would undoubtedly remove some of the pressure to contact employees. Even so, he reflects, after such a traumatic occurrence "there is no substitute for being able to speak to everyone on a frequent and regular basis."

A Wake-Up Call

Taken together, these experiences compose a fairly representative picture of how European companies in terrorism hot spots such as London, Madrid and Paris endure the possibility of disruptive terrorist attacks. While Europeans have simply factored the possibility of such disruption into the way they go about their business, U.S. companies have tended to assume that the problem of terrorism was one that wouldn't afflict America. "We've had a deep-seated belief in the invulnerability of our infrastructure," says Phil Lacombe, president of

information and infrastructure protection at Arlington, Va.-based software company Veridian, and a former staff director of the President's Commission on Critical Infrastructure Protection established by President Clinton in 1996. "We just don't have any experience of being attacked—even in World War II. The last time America's infrastructure came under attack was the War of 1812."

Consequently, he believes, American companies have been remiss when it comes to preparing for the threat terrorism poses. During his time at the commission, recalls Lacombe, businesspeople would ask him for definitive information on the threat so that they could raise awareness to the point of getting money for deterrence. Such information was of course difficult to come by. Ironically, some members of the commission used to observe "that it would take an infrastructure Pearl Harbor before America would listen," he adds. "That's just happened."

Steve Akridge, chief information security officer for Georgia's Technology Authority, the Atlanta-based IT arm of the state of Georgia, shares similar concerns. A former U.S. Navy chief cryptologist who worked in Europe, Akridge sees a sharp contrast between American preparedness for terrorist attacks and the far



Has too much data put you in a ba-a-ad mood? Store Smarter.™

**active
archive**

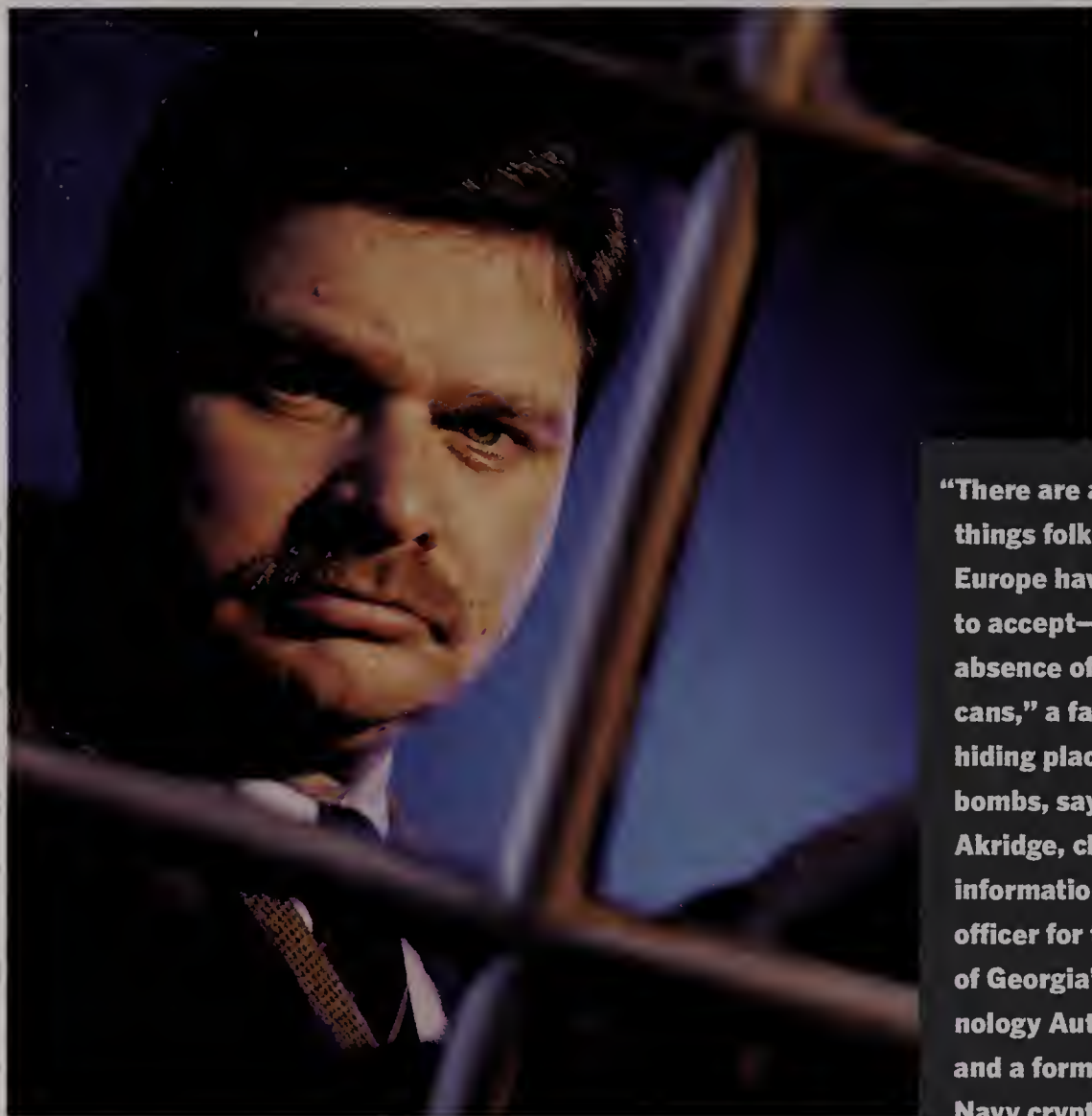
Active Archive Solutions.™ The intelligent way to optimize database performance.

Tight budgets and an even tighter database. Feeling squeezed? Well, while everyone else is buying more hardware, the smart ones Store Smarter with Princeton Softech's Active Archive Solutions.™ Active archiving sets aside infrequently used data to make room in your database, yet keeps it "active" for easy access. It's the cost-effective way to reduce database overload and improve performance. So give yourself some space.

Store Smarter. Call 800.457.7060 or visit www.storesmarter.com.

© 2002 Princeton Softech Inc. All rights reserved.

**princeton
softech**



"There are a lot of things folks in Europe have come to accept—like the absence of trash cans," a favorite hiding place for bombs, says Steve Akridge, chief information security officer for the state of Georgia's Technology Authority and a former U.S. Navy cryptologist stationed in Europe.

less sanguine view prevailing overseas. "I've spent time in the U.K., and there are a lot of things that folks there have come to accept, maybe without even thinking about it anymore—like the absence of trash cans," he says. (Trash cans are a favored location for terrorists' bombs.) "I'm concerned that we're now in that environment in America."

Recognizing terrorism as a risk of doing business is an attitude that prevails throughout Europe.

And certainly, the events of Sept. 11 have acted as a kind of wake-up call. "It's not a fire in an electrical room that they've got to prepare for or a flood," says Akridge. "Instead, it's utter devastation."

European companies have shown themselves more willing to pay out the serious money required to provide themselves with the best

form of protection against such devastation: backup facilities, ready to be moved into if necessary. In British eyes, the United States is underprovisioned with those facilities. "Having your computers backed up and your

data safe is no use if there's nowhere for people to operate those computers—what we call the bums-on-seats factor," says John Kersley, general manager for global recovery services at SchlumbergerSema of Walton-on-Thames, England.

It is, he adds, a peculiarly American blind spot. "We estimate that only 20 percent of the businesses based in the World Trade Center had an adequate disaster recovery plan in place at the time of the attack," he says. "In the whole of Manhattan, we could find less than 1,000 business continuity positions provided by third parties," he says. "In London, we alone operate 6,000 positions—and we're just one supplier."

Such backup facilities are big business in the United Kingdom. Although New York City dwarfs London as a financial and commercial center, London has more than 1 million square feet of third-party-operated business recovery space compared with New York City's 500,000 square feet, according to Kersley.

Recognizing terrorism as a risk of doing business is an attitude that prevails throughout Europe. "The incidence of ETA [the Basque terrorist group] terrorism in Spain is very localized, and sometimes we aren't very comfortable knowing that a specific node of our network is in a place with a higher degree of risk," says Paulino Folch, director of organization and IT at Nestlé España in Barcelona, Spain. "You

can't avoid such places—business is business—so you just have to live with the risk." In such locations, Nestlé applies the same technical security standards as

elsewhere, but stipulates a higher degree of physical security such as restricted access and a careful choice of server location.

One thing seems certain. Whatever their chosen degree of protection, American companies now join their European counterparts in knowing that the unthinkable can indeed happen. While the events of Sept. 11 were extreme—no attack in Europe has even come close to matching their horror—never again will U.S. CIOs be able to assume that it can't happen here. It has, and it could again. And that's something Europeans have known for quite a while. **CIO**

CIO.com

Read about strategies for staying in touch with employees by clicking on **LEARN MORE: LIVING WITH TERRORISM** in the Web Connections box at www.cio.com.

Let Senior Editor Megan Santosus know what other nations can teach the United States about security at santosus@cio.com. Malcolm Wheatley is a freelance writer based in Devon, England.

PHOTO BY SONNY WILLIAMS

today's
business
thought:

what's the
best use
of your company's
time and money?

hint:
it isn't
managing
IT infrastructure.



You have a business to run. And building and operating communications infrastructure probably isn't your core competency. So why devote your precious resources trying to reinvent the data networks, scalability, security and performance WorldCom is known for across the globe? After all, communications is *our* core business.

WorldCom has a team of experts whose sole focus is providing optimal solutions that are cost effective for your business. We manage those solutions through our global data centers, which plug directly into the world's farthest-reaching* IP network. Maybe that's why over 50% of the Fortune 1000 and their subsidiaries tap into WorldCom for complex IP services. Why not join them?

In these economic times, or really at any time, you can't afford to divert your attention away from driving your business. But you can afford WorldCom, and we're just a call away: 1-800-465-1792.

Want to learn more about VPNs?
Visit worldcom.com/us/library
for a free demo.

generation **d.**SM

GETTING TO

*A guide to Personalization 101, brought to you
by three companies that are doing it right*

BY MERIDITH LEVINSON

Remember all those big promises the dotcoms made about being able to market to their customers on a one-to-one basis? All that fancy-schmancy personalization technology they had behind their websites was supposed to make it happen. They would track their customers' every click, purchase and page view and then make recommendations about what books, CDs and clothes their customers

should buy. As we all know, personalization technology didn't pay off in time to save dotcoms' skins.

In fact, personalization has been the Web's biggest unfulfilled promise, at least so far. It has disappointed companies and consumers alike for several reasons. First of all, efforts that many companies tout as personalization are really just exercises in simplistic customer segmentation. Just because a letter from a bank about a home equity loan is addressed to "Dear Meridith Levinson" instead of "Dear Valued Customer" doesn't mean it's tailored to Meridith's needs, especially when she is single, rents an apartment and doesn't need a \$20,000 credit line. That is an instance of a bank segmenting an individual into some category of customer it deems worthy of a home equity loan.

Neither the bank nor the consumer wins in this situation; the bank doesn't sell a home equity loan, and the customer doesn't get offered the Roth IRA she really wants.

The second reason personalization hasn't lived up to expectations is because off-the-shelf personalization technologies focus on giving customers specific recommendations based on what they've bought in the past. And those recommendations don't differentiate between gifts and personal purchases. If Dad, who usually buys classic rock CDs for himself, purchases a Korn album for his 12-year-old son, he may start getting rec-

ommendations for grunge every time he logs in. And that's just annoying. By contrast, when a customer patronizes a brick-and-mortar store, he can get sensible recommendations on everything from house paint to upholstery swatches by simply asking a clerk. And it takes a lot less time.

Despite such disappointing outcomes, there are a handful of companies that understand the essence of personalization and are doing it right. They realize it's about determining a customer's unique needs and offering products and services that satisfy him. For instance, at San Francisco-based Reflect.com, a Procter & Gamble spinoff, women can customize cosmetics, moisturizers, cleansers, shampoos and conditioners

that best suit their skin and hair care needs. And if you're fed up with Weight Watchers and the Atkins' diets, essentially one-size-fits-all regimes, eDiets.com offers weight loss and fitness plans tailored to your individual activity level, dietary preferences, medical history and emotional needs.

B2B companies are also finding that their customers view personalization as a

Reader ROI

- Read about three companies making money from personalized service
- See why your business strategy must come first and the technology second
- Understand the importance of data integration in this endeavor

KNOW YOU



Jonathan Grayson,
CIO of Reflect.com,
has built technology
that allows the beauty
products company to
personalize every
interaction with
its customers.

Personalization

value-added service. For example, PSS World Medical, a \$1.8 billion distributor of medical products and diagnostic imaging equipment, is expanding its business by personalizing its online catalog according to its physician-customers' type of practice and what their colleagues are buying. Although only 6 percent of PSS's customers currently use the Web on a monthly basis to place orders, the company has increased its incremental sales by \$200,000 a month since the launch of its online system.

All three companies have based their personalization efforts on one fundamental principle. They put strategy first and technology second. They had to figure out if personalization was right for their business and how they could make it work before installing a single piece of code. Company executives also realized they had to fully integrate their information systems so that they could

pop-up ad that offers her a special deal on the conditioner that goes with that shampoo. And when a dermatologist shops on PSS's personalized website, the site automatically shows him other products that are most popular among his own colleagues.

If the pundits are correct, every company will have to individualize its products, serv-

its weight loss plans to such an extent that they appeal to people who have grown tired of Weight Watchers and Jenny Craig's cookie-cutter approach.

Every month, as many as 40,000 people sign up for eDiets' free newsletter, according to Steve Johnson, the company's CTO. And each quarter, approximately 100,000 new dieters pay \$45 for a three-month subscription to the program. The subscription entitles members to weekly fitness and meal plans customized according to their eating habits, dietary preferences, medical conditions, and emotional and weight loss needs. The Deerfield Beach, Fla.-based company has more than 300,000 paying members and 9.8 million opt-in subscribers to its newsletter.

Before the company went online, Johnson worked with professional, licensed dietitians to build eDiets' proprietary diet engine from scratch. The diet engine, which runs on Windows NT, relies on a customer database and a meal plan database connected via software. The software extracts information from each database to produce the customized diet plan for each member.

When a new customer registers on eDiets, she fills out a questionnaire, indicating her current age, weight, height and gender. Then, selecting from pull-down menus, she specifies whether she has any dietary preferences or restrictions—such as being a vegetarian—and indicates if she has any medical conditions, such as high blood pressure, hypertension, diabetes and high cholesterol. Finally, she indicates whether she's a couch potato, exercises moderately or is very active, and if she eats when she's stressed, depressed or upset. She submits the questionnaire to eDiets, and it gets stored in the customer database.

Not everyone gets a customized diet. The

EDiets CTO Steve Johnson's system automatically sends e-mail to customers who haven't logged in for a while.



The appeal of eDiets is its highly customized weight loss plan.

access and share customer information in disparate databases.

Tellingly, none of these companies rely exclusively on off-the-shelf software. Instead, they use entirely homegrown applications or some combination of packaged and custom-built software. (Off-the-shelf packages often don't include the functionality that many companies need to access and integrate legacy customer information.)

Finally, at least two of these companies are using their personalization systems to reach the Holy Grail: getting customers to spend more money with them through cross-marketing. If a Reflect.com customer orders another bottle of customized shampoo online, she is immediately greeted with a

ices and interactions with customers in order to stay competitive. Only then will the promise of CRM—increased customer revenues—be fulfilled.

WEIGHING IN, ONLINE

EDiets is one of a handful of subscription-based Internet pure-plays to have survived the shakeout and achieved a profit. The dot-com personalizes diet plans to overcome its biggest handicap—not having the face-to-face weigh-ins that programs like Weight Watchers and Jenny Craig offer. With eDiets, members weigh themselves in their homes and track their progress on the site. To compensate for not having regional weight loss centers, eDiets has to customize

Room to stretch.



Higher-performing—and more demanding—business applications and technologies are on the way. So how do you make sure you have the headroom to be ready for anything? Always choose PCs powered by the latest Intel® Pentium® 4 processors—now available at speeds up to 2.20 GHz. It's performance with purpose. Visit www.intel.com/info/pentium4 for more information.

Personalization

company advises dieters to check with their doctor before beginning any diet or fitness program, and they won't give you a diet if you're within a recommended weight range. Instead, the service may tell you that you're within your target weight and that trying to lose additional weight is unhealthy.

For eDiets' business to survive, it has to make sure members return to the site on a weekly basis and renew their subscriptions after three months. To encourage them to do that and ensure they feel supported in their weight loss efforts, eDiets uses the same proprietary technology the company has developed for generating the personalized diets. For instance, if the system finds that a member hasn't logged in for several weeks, it will automatically send that individual an e-mail encouraging him to stay on track, says Johnson.

The one drawback to the plan is that many members find the online program isolating. "With an online weigh-in, there just doesn't seem to be the motivation to stay on program the way there is with a face-to-face program like Weight Watchers," says a former eDiets subscriber.

eDiets tries to combat that handicap with chat rooms and bulletin boards on its website, as well as a toll free number dieters can call for help or a kick in the pants. If a member calls to say she's having trouble staying on the diet because she's hungry all the time, eDiets' staff can access the member's information through a Web-based application

Reflect.com created a holistic view of each customer by pulling together data from disparate databases.

that is linked to the diet engine and the customer database. They can see the meal plan the customer is currently using and adjust her caloric intake.

The personalized approach seems to be paying off. eDiets celebrated its first profit one year after it launched online in

THREE TIPS FOR EFFECTIVE PERSONALIZATION

1 DEVELOP A CLEAR personalization strategy first, then implement the technologies that will support it. Your strategy should define what services you can tailor to your customers and how those personalized services will bring increased value to your company. Don't skimp on the right technology. If you can't find it in a shrink-wrapped package, develop it yourself.

2 BUILD INTERFACES between e-commerce, CRM and ERP systems where customer information is stored so that it can be accessed and shared.

3 SET UP an infrastructure to facilitate personalization across all channels of your business. —M.L.

November 1999 and has been in the black ever since. The company earned approximately \$11.4 million in revenues in 2000 and an estimated \$25 million in 2001, 90 percent of which were generated through paid subscriptions.

THE BEAUTY OF INTEGRATION

Like eDiets, Reflect.com also developed proprietary technology to customize its products—in this case, skin and hair care products and cosmetics. When the online

that customizing beauty products is possible, Reflect.com also has to carve a niche for itself in the highly competitive beauty care space.

Now, when a customer wanders on to Reflect.com and indicates an interest in buying eye cream, she is prompted to fill out a questionnaire that will help Reflect.com create a product that suits her needs. She indicates, for example, whether she gets dark circles or puffiness under her eyes, whether she would like the skin under her eyes to be smoother, if she has laugh lines that she wants to reduce, and if her eyes are sensitive.

Once she completes the questionnaire, it is transmitted to Reflect.com's homegrown matrix system and its IBM Websphere transaction system, which processes the order. The matrix system is a connected system that learns from example rather than following preset programs. The matrix determines which active ingredients should or should not be included in a product given the parameters the customer has provided. So if the customer purchasing the eye cream indicates she wants to minimize dark circles under her eyes but thinks her crow's feet give her character, her eye cream will be made with vitamin C to treat the dark circles, but vitamins A and K, which supposedly reduce wrinkles, will be left out.

Because Reflect wanted to go beyond customizing products to personalize its every interaction with every customer, Grayson had to overcome the biggest challenge companies face when trying to do personalization effectively. He had to create an infrastructure in which disparate data sources—from Reflect's e-commerce transaction system to its CRM, manufacturing and fulfillment systems—could all be accessed as one. And he did that in two ways: by basing all of the systems on Oracle databases and by making them feed into an Epiphany data mart. For example, the transaction server, the Web server and the homegrown system that formulates each customized product access the same database. The data mart also pulls information from those servers and systems. So if a buyer who once customized eye cream replaces it, Reflect.com

You won't see the next network security threat coming.



STAT

When the next Code Red, Goner or Nimda comes along, STAT could be the difference between a crippled system and one that's completely unaffected.

But STAT[®] will.

Arming yourself against the next threat requires more than vigilance. It requires a **new level of defense**. At Harris, we know; for more than 25 years, we've helped keep government networks secure — and now we're helping businesses stay ahead of the enemy with our STAT intrusion prevention tools. For example, STAT Neutralizer[™] **proactively protects servers and workstations** by using behavioral analysis to prevent intrusions and malicious activities from taking place. STAT Neutralizer provides a new layer of security to defend your network during its most vulnerable time — **before an anti-virus update can be downloaded**. And that's just the beginning of what STAT can do. To start winning the war on cyberattacks, call 1-888-725-STAT (7828) today or visit our website.

next level solutions

STAT ANALYZER

STAT NEUTRALIZER

STAT SCANNER

cio.STATonline.com

HARRIS

Personalization

will automatically cross-market other eye products to her in a pop-up ad.

Whether a customer rejects or accepts the offer, Grayson says, her response is fed back into the Epiphany system. This way, she won't be bombarded with offers for products in which she's not interested, and Reflect.com can alter the segments of customers to which certain offers are targeted based on the type of women who have responded to them.

To date, Reflect.com has created about 3.5 million unique products, according to Grayson, who says that the cost of customizing is slightly higher than mass-producing similar high-end beauty products. Since it first launched, Reflect has received \$85 million in funding from Procter & Gamble and Redpoint Ventures. Grayson says the company is on target toward profitability, but he declined to release specific financial numbers. According to Jupiter Media Metrix, Reflect is the largest beauty products site on the Web.

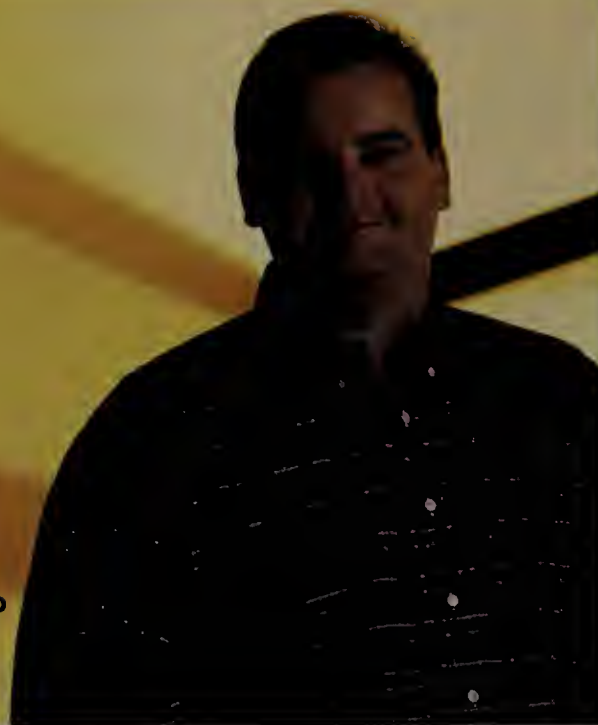
Companies that don't customize their own products but want to personalize their marketing and sales campaigns can use the same approach. Access to information in different systems is key when it comes to tailoring interactions with customers, says Grayson. With it, companies get a more detailed understanding of their customers' preferences, which "allows you to tailor messages that don't look cursory or thrown together," he adds.

A DOCTOR ON BOARD

Personalization is not just for B2C companies. PSS World Medical, an up-and-coming distributor of medical supplies and diagnostic imaging equipment, is finding that the power of personalization works as well in the B2B space.

Today, the Jacksonville, Fla.-based company controls 15 percent of the physician supply business and competes directly with

David Ramsey, CIO of PSS World Medical, says his company is gaining competitive advantage by showing personalized websites to prospective customers.



10 other distributors, including divisions of such big name companies as McKesson-HBOC and Cardinal Health. To differentiate itself from its competitors and crack bigger accounts, PSS launched two portals, MyPSS.com in December 2000 and MyDIOOnline eight months later. It customizes these portals according to each customer's practice type and brands the pages with the customer's name or logo.

Small private medical practices and large health-care organizations alike use MyPSS.com to order more than 56,000 products including everything from basic bandages and syringes to test tubes and petri dishes. Radiologists use MyDIOOnline (the DI stands for diagnostic imaging) to select from more than 8,000 SKUs including mammographic and X-ray equipment, film and chemicals. The portals are built on BEA's Web Logic Application Server and run on BEA's commerce component framework and personalization server. Customer information is stored in a centralized Oracle database. The company's ERP system, sales-force automation application and databases are pulled together using IBM's MQ Series middleware.

When a customer first registers to use one

CIO.com

For more on this topic, visit our **CRM RESEARCH CENTER** at www.cio.com/crm.

of the catalogs, say MyPSS.com, she can choose to see only the products that are relevant to her practice type. Once she begins placing orders, PSS maintains a real-time list of all the products the physician ordered during the past 18 months ranked in descending order by quantity. This section, called MyItems, makes it a lot easier for a doctor to find the 20 items he has purchased (out of a catalog of 56,000). PSS can also use the

list to show one dermatologist what her colleagues are buying.

Wayne Meyerson, director of e-business for PSS, says the recommendations encourage people to shop more. "Because we make it so easy for people to buy online, we see a 20 percent higher average size order on MyPSS.com as opposed to through the traditional methods of the phone and sales rep," he says.

As an added advantage, PSS can use the personalization information it collects to determine whether a customer is a member of a small private practice or belongs to a much larger clinical system. If the latter is the case, David Ramsey, CIO of PSS World Medical, alerts PSS's corporate accounts staff, who then attempt to open more accounts across that entire clinical system.

Ramsey says that big accounts were always tough for PSS to win in the past. But with its personalized tools, PSS's sales force is pitching like Pedro Martinez. "With the technical ability we have to personalize a site in a day, we can walk in on a prospecting deal and show them a customized site with their logo, their colors and their content needs," Ramsey says. "It's interesting how well that plays to people's egos. It is helping us win large accounts that we've never before been able to win." 

Do you have any personalization stories to share? E-mail Senior Writer Meridith Levinson at mlevinson@cio.com.

VERITAS BACKUP AND RECOVERY SOFTWARE

The world leader in data backup and recovery software.

(Yes, we can back that up.)



VERITAS™

86% of the FORTUNE 500® rely on VERITAS Software. In fact, we're the world leader in data backup and recovery software with nearly twice the market share of the next closest competitor. Our consulting services team is ready to help your company design and implement a data recovery plan. Visit veritas.com today.

©2001 VERITAS Software Corporation. All Rights Reserved. VERITAS, VERITAS Software, the VERITAS Logo and all other VERITAS product names and slogans are trademarks or registered trademarks of VERITAS Software Corporation in the USA and/or other countries. Other product names or slogans mentioned herein may be trademarks or registered trademarks of their respective companies.

Emerging technology

INNOVATION and PRODUCTS in the VANGUARD

Inside

Companies to Watch

*FileMaker goes
corporate* 88

Under Development

*Fiber to the
processor* 90

Revisit

*Export
management* 92

Predictions

IT leadership 92

*Edited by Christopher
Lindquist. Send your
thoughts and ideas
for future columns to
clindquist@cio.com.*



The Last Mile—Wireless Style

Fixed wireless can provide an affordable option, but don't forget to factor in Mother Nature BY BEN WORTHEN

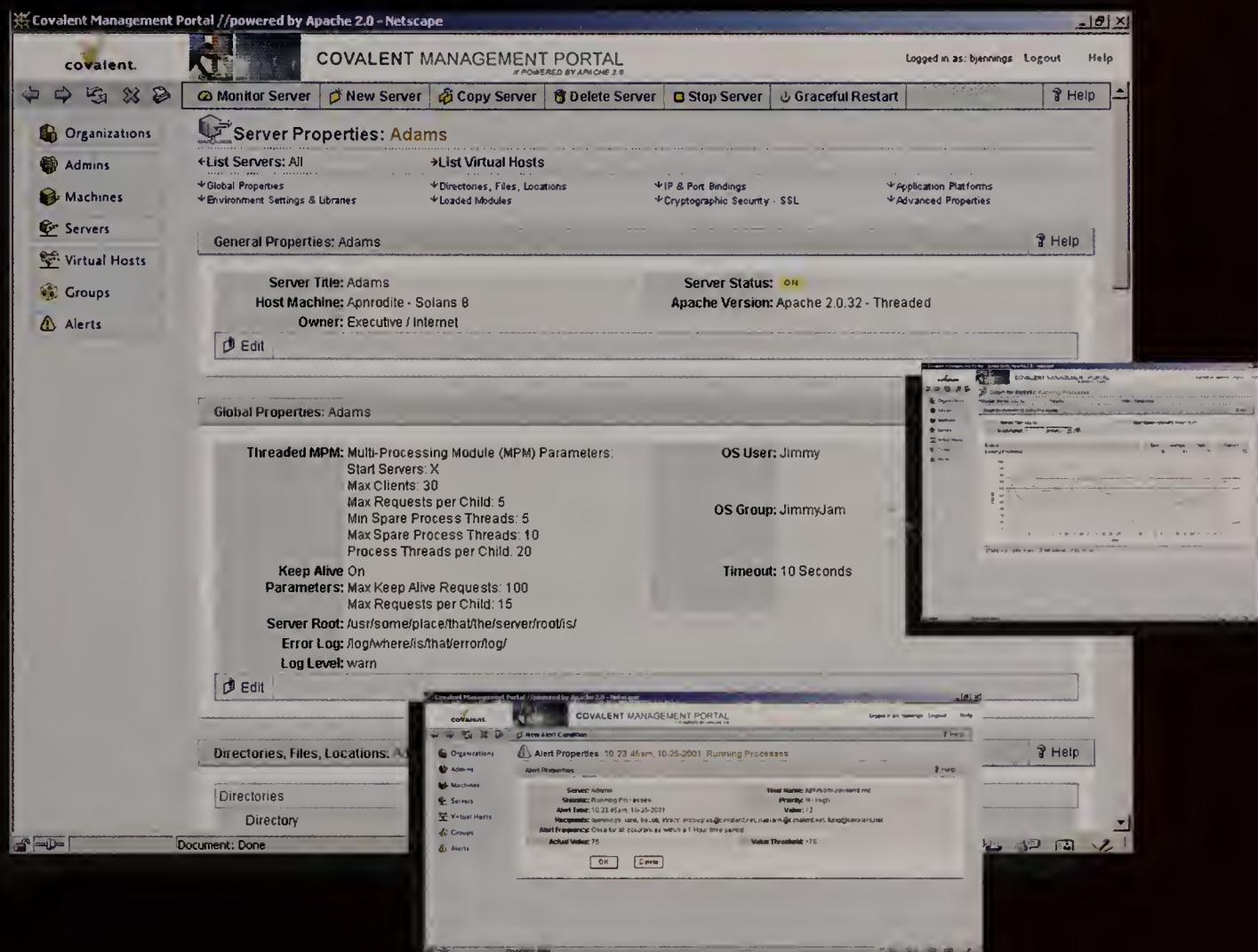
GOOD CIOs have gone mad trying to find cheap and effective last-mile connections between their corporate LANs and WANs. The pipes most companies have in place don't offer the performance companies need to handle media-rich communications, and getting a new T1 or fiber-optic cable put in the ground takes time and money—usually lots of both. Wireless companies prom-

ise an alternative: high-speed service at a fraction of the cost.

The word *wireless* usually conjures images of cell phones, handheld computers or other personal communication devices rather than the information moving among them. The gadget mind-set, however, is a recent phenomenon that disregards the history and evolution of the wire-

Fixed wireless...Fiber computing...Export software...Leadership

FINALLY THE ONE THING APACHE HAS BEEN MISSING ALL ALONG



COVALENT ENTERPRISE READY SERVER POWERED BY APACHE 2.0

- Centralized browser-based management of hundreds of servers
- Enterprise grade Web server security
- Reduced total cost of ownership



FREE Find out what's new in Apache 2.0. Sign up for our free Web seminar at www.covalent.net/finally or call us at 800/444-1935 for more information on Enterprise Ready Server.

less medium. For the first hundred years after Guglielmo Marconi's early radio experiments in 1895, wireless simply meant a way to transmit electrical signals without (duh) a wire. Wireless first entered the mainstream telecommunications space in 1969 when the FCC approved a plan by MCI (Microwave Communication Inc.) to provide long-distance telephone service with wireless radio signals. And despite the nation's obsession with gadgets and gizmos, the wireless-way-to-deliver-information continues to evolve. (For a look at other wireless technologies, see "Wireless that Works," Page 60.)

To differentiate themselves from the mobile device world, companies using radio waves and stationary antennae have adopted the label "fixed wireless." Because there is no need for mobility, these companies can use relatively large transmitters (compared with mobile devices that need to be portable) and consequently achieve

transmission rates comparable to or higher than T1 and DS-3. Since there is no cable to run, fixed wireless can be a significantly cheaper way to span the fabled last mile.

There are two different approaches to fixed wireless: point-to-point, which allows for large broadcasts between two points;

"Fixed wireless removes us from the mercy of third-party carriers and gives us control." —Banner Healthcare CIO Paul Panico

and point-to-multipoint, which essentially creates a high-speed wireless network. Each is used in different situations and has distinct benefits and challenges.

Point-to-Point

Point-to-point is the basic form of fixed wireless: a small dish antenna transmits data over a distance to another dish. The

range is limited by line-of-sight. Under ideal conditions, a signal can travel 30 miles, but if anything gets in the way, you don't get your signal.

For the University of Texas at El Paso (UTEP), its 100Mbps antenna delivers data only a fifth of that distance, but it

spans two countries. UTEP is a Gigapop (access point) for the Internet2 project, one of about 30 such points in the world that provide connections to the high-speed next-generation Internet being used by a handful of universities to share media-rich applications. Keeping with its close relationship with the University of Juarez just over the U.S.-Mexico border, UTEP decided to lay a dedicated Internet2 line to the Mexican school, which could, in turn, use existing landlines to share Internet2-based research with other schools in Mexico and Central America.

The cost and bureaucracy of laying high-speed cables in two different countries made fixed wireless the only feasible choice, says UTEP CIO Anna Hines. "There may be fiber in the ground, but not the type of bandwidth that is required [for Internet2]," she says. "This is a totally different type of backbone."

In corporate settings, point-to-point is more commonly used to extend a LAN from one building to another. Banner Healthcare, Caterpillar and Merrill Lynch among countless others all use point-to-point fixed wireless in this capacity to one degree or another. Fargo, N.D.-based Banner Healthcare, for example, moved 110 Greeley, Colo.-based employees to an offsite building two miles away. To connect them to the main system they could have spent about \$34,000 annually on a 45Mbps DS-3 line (assuming Qwest approved the construction). That didn't

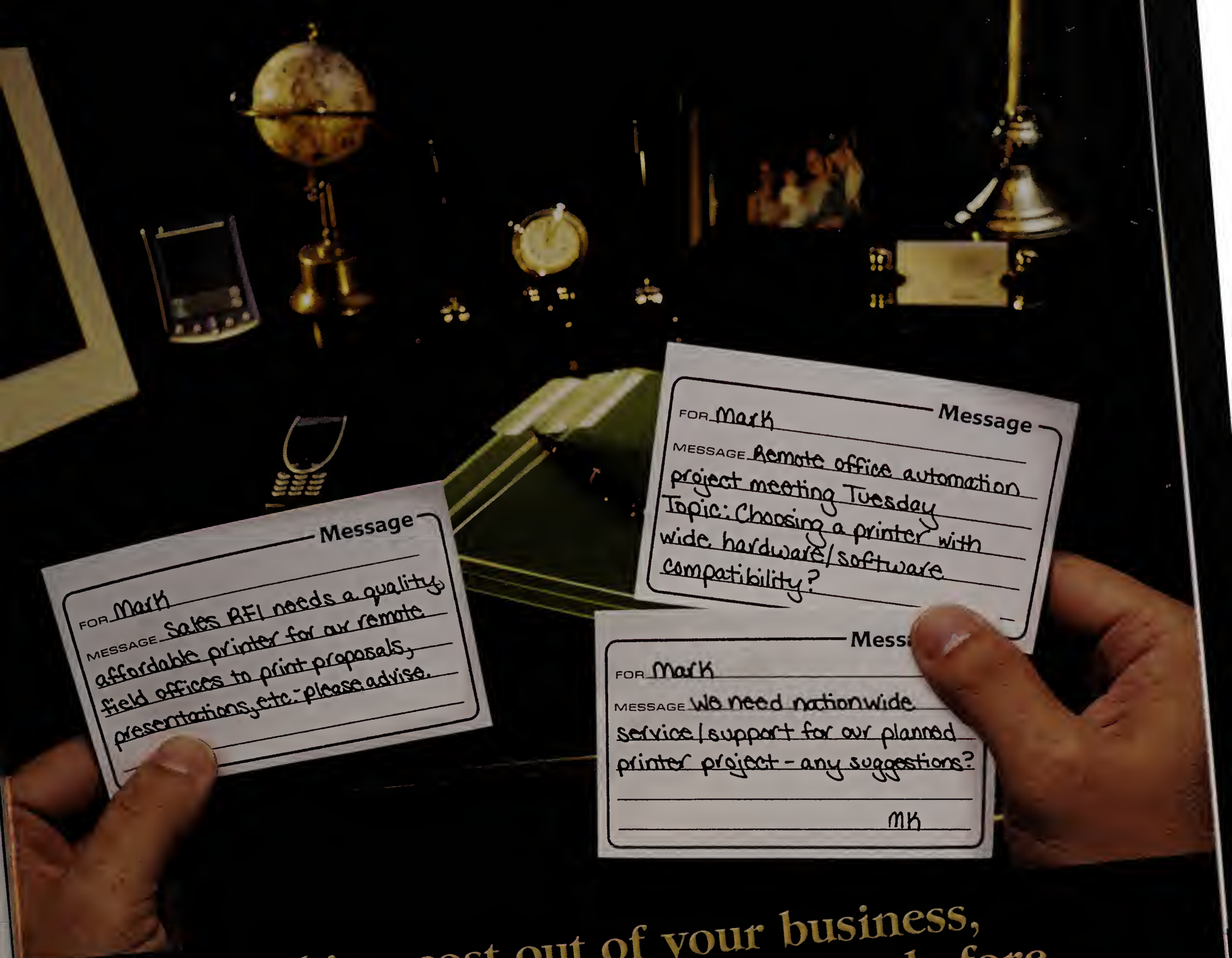
Fixed Wireless to the Rescue

Making connections after a tragedy

AT 5:22 P.M. on the afternoon of Sept. 11, Bill Chen, director of network architecture for Everest Broadband, watched as the TV showed the horror of 7 World Trade Center's collapse. A minute later, monitoring software at the Fort Lee, N.J.-based Internet service provider's Network Operations Center starting generating a slew of network failure alarms. The T1 and T3 lines the company leased from Verizon and other carriers to connect its customers to the public WAN ran through the fallen building and now lay, severed, beneath tons of rubble. Some of Everest's clients, small to midsize companies in large, multitenant buildings were left without Internet connections.

At first, Chen says, Everest thought they could simply wait until the lines were recovered—everyone had higher priorities. But soon "we realized that if this takes a long time we are going to lose our customers," he says. Laying a new T1 line would require permits and street work, and Verizon had placed a moratorium on new orders anyway. But Everest already had fixed wireless antennae extending its LAN between the two buildings on its Fort Lee campus, and now as the company hurried to bring its clients back online, it occurred to Chen that fixed wireless would be the only way to do it.

It took a couple of weeks to clear debris from and restore power to the buildings (and for authorities to grant access to the ground zero area) and another week or so to conduct the line of sight surveys necessary to line up the antennae. The end result was three buildings, each within a mile of each other, with 100Mbps wireless antennae on their roofs. The signals consolidate on the top of the third building and travel five miles to a building with a T3 line, which connects back to the WAN. Chen now says that Everest will continue to use the fixed wireless as a permanent solution because it is cheaper and "no one can tell the difference." —B.W.



Taking cost out of your business, more important today than ever before.

That's why Brother's Commercial Division is committed to providing superior and reliable business printers that increase productivity while reducing costs. This enables businesses like yours to more

effectively address critical organizational goals and challenges.

But it is our product reliability coupled with a responsive nationwide support and service network that has companies like yours putting Brother laser printer solutions at the top of their requisition lists.

Brother's Commercial Division welcomes the opportunity to put our resources to work for you. Contact us today so we can show you how we can positively impact your bottom line while enhancing your performance.

For more information, call 1-866-455-7713, ext. 905

At your side.

brother®

© 2002 Brother International Corporation, Bridgewater, NJ • Brother International Corporation, Nagoya, Japan
For more information please call the Brother Fax-Back System at 800-521-2846 or visit our web site at www.brother.com



Network Printer Solutions



Color Laser Solutions



Multi-Function Solutions



Desktop Laser Solutions



Fax Solutions

measure up well against a \$37,000 onetime charge for a 100Mbps fixed wireless connection. The DS-3 line would also have taken as long as 18 months to install, whereas the wireless system was up and running within 30 days. "Going to fixed wireless removes us from the mercy of third-party carriers and gives us control," says Banner CIO Paul Panico.

Point-to-Multipoint

The fixed wireless cases above illustrate what Gartner Analyst Phil Redman sees as the overall adoption pattern: Companies use fixed wireless because fiber lines are not a viable option, mostly due to location. That pattern is even more obvious in point-to-multipoint wireless. The economic

to-multipoint customers in 2001 compared with 1.7 million customers for DSL, multipoint's land-based competitor. "The economics of it says it only makes sense to put a tower in fully saturated areas," says Brad Baldwin, broadband research director at IDC (a sister company to CIO's publisher, CXO Media). "In the [San Francisco] Bay area, for example, there is a tower up serving a very dense area. But it is too expensive [compared with DSL] to get enough customers in these areas."

Dallas-based Clearwire, a point-to-multipoint ISP targeting small businesses, has had some success charging anywhere from \$100 to \$200 a month for service in remote areas such as West Texas where there are no DSL lines. But other than in

Environmental constraints—line-of-sight, connection outages in storms—are the biggest knocks against fixed wireless technology.

slump that has ravaged the telecom sector has hit point-to-multipoint service providers particularly hard. And the technology's largest backers—AT&T Wireless and Sprint Worldcom—recently abandoned their multipoint initiatives, signaling an overall industry collapse.

There are two types of point-to-multipoint technologies: LMDS (local multipoint distribution system), a super high-speed (up to 1.5Gbps), short-range signal (2 miles) in the 27GHz to 30GHz spectrum; and MMDS (multipoint microwave distribution system), a slower speed (30Mbps), long-range (20 miles) signal in the 2.4GHz to 2.8GHz range. Experiments have also been done with 802.11 technology.

A point-to-multipoint receptor on a buildings sends a signal to a tower, which transmits the signal to the Internet access point. But the equipment and service is expensive and hasn't caught on—IDC estimates that there were 100,000 new point-

out-of-the-way places, the future for point-to-multipoint in the United States is not that bright (Baldwin says he is ready to write off LMDS). However, Craig Mathias, an industry analyst and founder of the Ashland Mass.-based Farpoint Group, isn't quite so dire, noting that point-to-multipoint may still have a bright future in developing nations that don't have a telecommunications infrastructure already in place.

Free Space Optics

Free space optics, a third technology trying to catch on, is not fixed wireless in the traditional sense. It is not a radio signal at all, but rather a laser. While it sounds like something out of *Star Wars*, it actually works the same as fixed wireless—data travels through the air—and as such gets lumped into the same category almost by default. Free space optics is a relatively new technology. The laser beam is about the size of a baseball and can travel up to half a

Companies to Watch

FileMaker Inc.

SANTA CLARA, Calif.-based database vendor FileMaker is in the process of remaking itself as a friend for IT departments looking for an easy, low-maintenance departmental product.

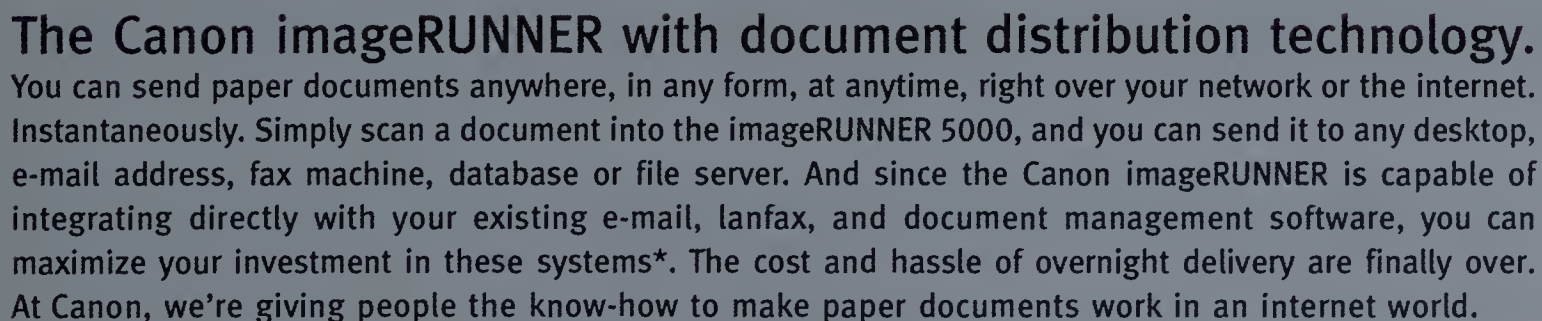
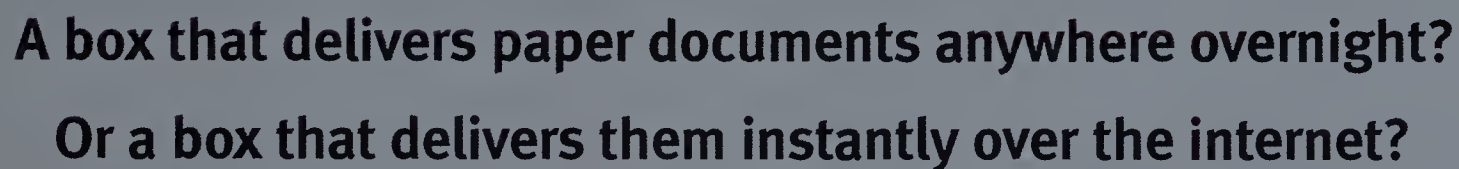
In the past, FileMaker could pose a problem when those small-scale, database projects had to scale up to corporate proportions. To address those issues, FileMaker 5.5 adds all the right acronyms, including JDBC drivers to allow connections to Java applications and support for XML-based data sharing, providing an easier migration path.

The product is available in a variety of versions, including FileMaker Pro 5.5, which supports applications running over Citrix Metaframe and Windows 2000 Terminal Services; FileMaker Developer 5.5, which adds development tools such as a script debugger; and FileMaker Server 5.5, which lets corporations host FileMaker applications on centrally managed servers running Windows 2000, NT, Linux and Mac OS 8.6 or later.

"I wouldn't say, 'Let's kick out your existing workgroup and department systems,'" says Wayne T. Kernochan, managing vice president at Aberdeen Group in Boston. "But if you're faced with a choice between this and another system, and cost is a major consideration, it is a valid alternative."

—Christopher Lindquist

* Requires additional software which is sold separately. Speak to your authorized Canon dealer.



Call 1-866-25-CANON or visit www.imagerunner.com

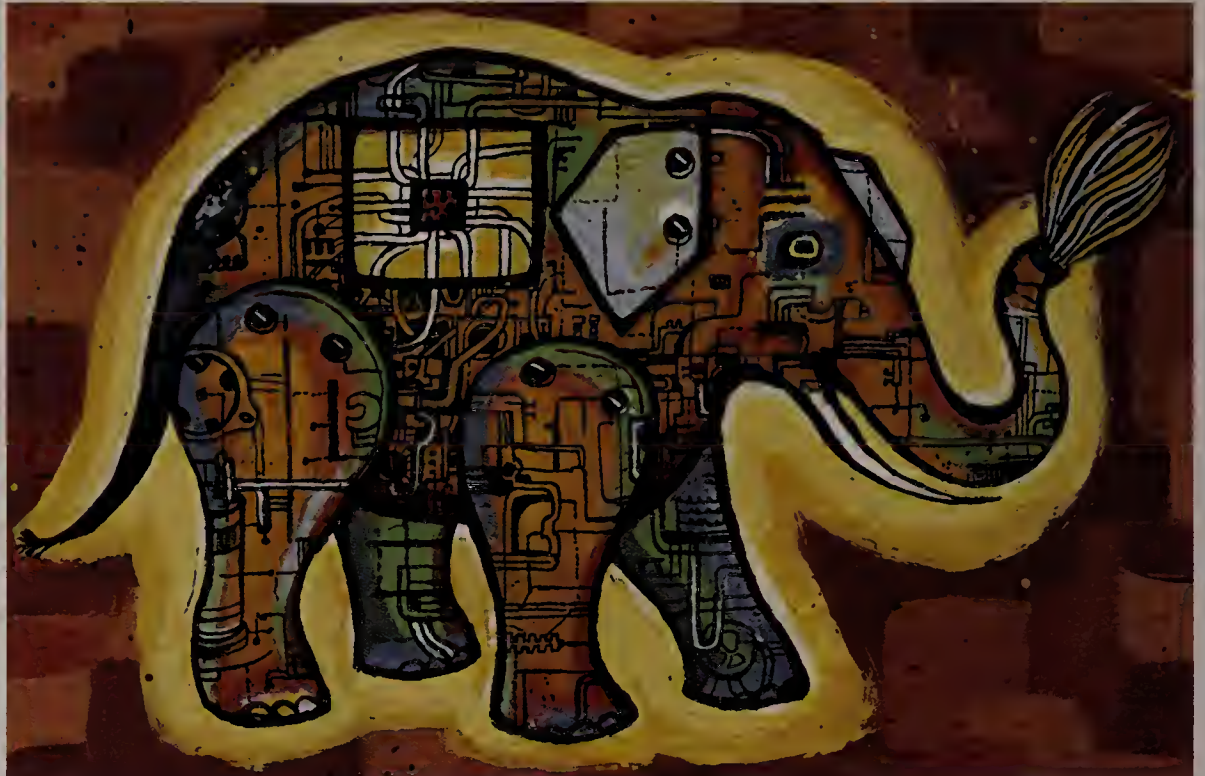
mile, but because it operates at between 750 to 1,500 nanometers it is invisible to the eye (700 is the highest visible spectrum). It can achieve speed up to 1GB per second.

Larry Ice, CIO of Fisher Communications, a Seattle-based communications and media company that owns and operates several television and radio stations, uses a free space optics service provided by Seattle-based ISP Terabeam. Fisher broke ground on its own building in 1999 and when they began moving into the as-yet-unfinished structure a year later Ice realized that they needed to connect the old and the new offices. Qwest, AT&T and others wanted around \$47,000 a month for high-speed data lines, plus fees to dig up the street to lay the cable. Terabeam was able to connect the buildings at half the price, in half the time and offer 10 times the bandwidth.

Free space optics is not problem-free, however. One foggy day, Ice lost his connection for about an hour. It wasn't the end of the world, but it was a hassle because the T1 backup line he insisted on as a condition to signing with Terabeam wasn't in place yet. In fact, Ice says that while he was attracted to the speed and ease of installation with free space optics, he only decided to use it once he knew he would also have a landline backup.

The environmental constraints—line-of-sight, connection outages in storms—are some of the biggest knocks against fixed wireless technology. Even if those fears are overplayed, they remain enough to cloud the technology's future. Farpoint's Mathias says that the only reason people are turning to fixed wireless is if they are in an area without or with prohibitively expensive landlines. If this doesn't push it into a niche market, as many analysts predict it will, it might resign it to permanent fail-back system. Useful, but probably not what Marconi had in mind. ■

Staff Writer Ben Worthen transmits data from a fixed location—his desk. You can e-mail him at bworthen@cio.com.



UNDER DEVELOPMENT

Optical links

Fiber All the Way

ELECTRICITY IS UNDENIABLY useful, but run it around the densely packed circuits that make up your average computer motherboard, and it can cause problems such as heat and electrical interference. Eliminating those issues lies at the core of Tempe, Ariz.-based Primarion's dream, called Fiber to the Processor.

In three to five years, the broadband silicon chip company hopes to connect processors, memory and other components with high-speed, inexpensive optical links that will eliminate many of the performance-robbing pitfalls of today's technology.

Primarion sees the InfiniBand storage connectivity bus as a natural step toward the final evolution. With InfiniBand, IT managers will be able to effectively separate computers from storage by providing high-speed connections between modular components. Expanding the idea further, however, would let system makers increasingly modularize PCs by connecting memory, processor, storage and I/O devices into a computing mesh. Adding new processors or more storage in this scheme would be a simple matter of attaching another module.

The first hurdle Primarion has to overcome is short-distance optical—the connections among various components that will make up a computer. Current options are bulky and expensive, but Primarion is developing optical packaging technology that doesn't require special factories—which simultaneously will address both the size and cost issues.

The company has also created a power supply capable of keeping up with insanely fast optical systems. Current power supplies would have trouble syncing properly with the processor, which could result in data being misinterpreted. So Primarion has created a power system that it claims is 2.5 times faster than those existing for today's gigahertz processors.

The end result could be machines far more flexible and orders of magnitude faster than anything that exists today. "If optical links are cheap enough, they'll certainly be everywhere," says President and CEO Dan Clarke. "And that's our goal."

—Christopher Lindquist

**AND YOU THOUGHT ALL WE
MAKE IN MICHIGAN IS CARS.**

We're also America's Big Wheel in Small Tech.

This new industry researches and develops tiny machines also known as Microelectromechanical Systems (MEMS), Microsystems and nanotechnologies.

Small Tech is currently being developed at Michigan companies like Dexter Research, whose infrared detectors shown above, have been commercialized for the health-care and safety industries.

Other Small Tech developments in Michigan are enabling technologies across the state's high-tech sectors including the deployment of automotive airbag systems, portable "DNA lab-on-a-chip" for law enforcement, and implantable drug delivery systems.

While we are the proud birthplace and continuous innovator of the automotive industry, Michigan is also pioneering the newest technology industries. Small Tech is just one example. For more, call **1.800.946.6829** or visit **www.michigan.org**.

www.michigan.org



MICHIGAN | GREAT LAKES. GREAT LOCATION.

REVISIT

Export management

Border Crossings

IT plays a big role in managing global commerce

BY FRED HAPGOOD

THE ARGUMENT that we are living, or at least entering, a new economy rests on two legs: the spread of computers and the ongoing systematic organization of the world economy. While the first point gets most of the press, the latter may be almost as important. Small, locally defined markets sacrifice value by limiting both economies of scale and the growth of specialization. As markets grow globally, the resulting increases in efficiency should release a continuous stream of value into the world economy.

It seems that the hottest piece of the IT market would be where these "legs" join, with the use of computers to manage cross-border transactions. An article we ran in 1993 ("Made for Export," Dec. 15), though narrowly focused on the migration of a single major corporation's export management system from paper to software, seemed to catch this spirit. According to

our piece, this transition had no downside to speak of: You just wrote the software, booted her up and counted the dollars.

Given this, it seems paradoxical to learn from those involved with cross-border trade that the field was one of the last corporate functions to be digitized. "You could see typewriters in offices into the late '90s," says Cris Arens, president of Fountainhead International, a logistics software house in Bensenville, Ill. "And they were being used too."

Arens and other sources offer many reasons why cross-border logistics were so slow to adopt IT. Over the decades, international trade had built up a huge paper infrastructure, involving countless forms issued by public and private bureaucracies around the world (packers, inland carriers, international carriers, banks, insurers, freight forwarders, warehousers, customs and more), each with its own data and for-



career management

PREDICTIONS

IT Needs Leadership

CIOs NEED to become leaders, not caretakers, according to a recent report by Stamford, Conn.-based Meta Group.

The report, "The CIO Desk Reference: Critical Competencies Every CIO Must Master," states that CIOs must look beyond day-to-day operations and gain skills in areas such as IT portfolio management and value management. The downturn in IT spending will force CIOs to make the case for their initiatives as contributors to the bottom line—not just cost centers.

According to Meta Group, CIOs must establish a disciplined approach to managing IT assets to help reduce costs and improve return on investment. The "Desk Reference"—compiled from the firm's research and its CIO Boot Camp program—provides information intended to help CIOs implement this approach. The report includes sections on portfolio management, risk management, marketing IT capabilities, techniques to increase IT value perception and more.

The 550-page report is available directly from Meta Group. For more information, visit www.metagroup.com.

—Christopher Lindquist

Companies using our
integration platform have
realized a

10-20%

reduction in working capital
requirements

and a

3-5 times
return on investment

Ask us what we can do
for your company.

The webMethods integration
platform unlocks the power of
your IT investments by delivering
Global Business Visibility—
complete integration of business
processes, applications and
databases enterprise-wide.
Through Global Business Visibility,
webMethods provides the clarity
you need to control and optimize
your business — not just to compete
or merely survive, but to thrive.

www.webMethods.com

webMethods®
The Business Integration Company

mat requirements. Digitizing enough of these forms to make the transition useful would have been a huge job, and some data had to be on paper anyway, as a matter of law. For most companies, cross-border trade was essentially a revenue afterthought, which meant the resources to pay for the shift were hard to find.

Finally, there was no overwhelming reason to change. The high fixed costs of each transaction and relatively slow business cycles encouraged trade to move in small numbers of large shipments—one 10,000-unit shipment might arrive in February and then another in the fall—and typewriters could keep pace with that flow.

Through the '90s, however, governments around the world launched a num-

services company that specializes in global trade management, likes to propose this quiz: "Did Nafta make it easier or harder to move goods over borders?" You know by his tone that the right answer is not the obvious one. "Harder, because now you needed a staff to prepare the documents," he says. "People argue over whether Nafta created jobs," says Frank Cirimele of Xporta, a company in Santa Clara, Calif., that makes software to manage cross-border supply chains. "It sure did for lawyers."

Other categories of regulations, such as end-user restrictions, started proliferating rapidly at the same time. There are now 14,000 entries on the list of persons or entities for which American companies

time and effort digitizing the required documents that the databases started to become useful.

The result is that for the first time large components of U.S. trade can be tracked and managed with software. This is potentially quite significant. Digital environments are much more flexible than paper-based IT processes. They can be reconfigured—adopting innovations and enhancements—in minutes. Today, dozens of software vendors around the world turn out software with features that seem bound to simplify and therefore accelerate trade. Fountainhead's Arens cites as an example rate analyzers that can automatically probe prices across multiple shipper databases, kicking out detailed suggestions for the most cost-effective shipment compositions and carriers. According to Xporta's Cirimele, last summer the United Nations agreed on a common document standard for commercial transactions. When implemented, this will allow supply chain management and resources planning software to collect, forward and integrate data seamlessly across borders. Greg Stock, a vice president at Vastera, points out that digitized services are easy to repackage for many different kinds of clients. For example, they can be distributed over the Web by third parties via an ASP-type relationship. "A company can be a global player instantly," he says.

While it is hard to know for sure how much value gets thrown away by the current balkanization of the world economy, the prosperity of the few large trading blocs in the world (the United States and the European Community) suggest that the amount is very large. If the theory that prosperity is a function of market size turns out to be true, then the digitization of trade-related IT might turn out to be one of the more important economic stories of our time. **CIO**

Are there topics you'd like us to revisit? Tell us at et@cio.com.

It would seem common sense that freer trade would translate into a simpler process, but that is not how trade adjustments work.

ber of initiatives to lower trade barriers. It would seem common sense that freer trade would translate into a simpler process, but that is not how trade adjustments work. Trade is a highly charged process politically; changes always involve extended haggling over the finest possible details. The end result is usually a complicated stew of solicitation and qualification instruments, and refund claims tied to detailed lists of specific products and country-of-origin content documents, all linked to phase-in and phase-out schedules that themselves are constantly changing.

Larry Christensen, a vice president at Vastera, a Dulles, Va.-based software and

need special permission to do business, and more make the list every day. In short, typewriters could no longer keep up.

In 1996, the U.S. Department of Commerce had become so concerned about the costs and level of compliance with this flood of regulations that it began the first general rewrite of export procedures since 1949. The emerging system was designed from the ground up to be implemented in software. By 1999, customs had completely automated the submission of export control documents and the gathering of export statistics. A similar arrangement for import documents followed a year later.

At the same time, cross-border transactions involving U.S. companies doubled from one trillion to two trillion. Trade began to represent enough revenue to assert a serious claim on corporate IT investment budgets. Finally, by the end of the decade, companies had spent enough

CIO.com

Read Chris Lindquist's **TECH TACT: NEW TOOLS FOR NEW JOBS**, every Monday at www.cio.com.



The events of 2001 have proven that America's business and IT organizations are both adaptive and strong — *but where do we go from here?*

APRIL 14-16, 2002 ■ SHERATON BAL HARBOUR BEACH RESORT ■ BAL HARBOUR, FLORIDA



Strategies for the New Reality

Get powerful insights and actionable ideas from the people you trust the most: your CIO peers at leading companies, plus thought leaders on the economy, the law, technology and business.

Jonathan Zittrain, noted speaker and Executive Director of the Berkman Center for Internet & Society at the Harvard Law School, joins us as conference moderator.

We'll tackle:

■ **THE ECONOMY**

How long and rocky is the road ahead?

Robert Shiller, Economist and author of *Irrational Exuberance*

■ **IT AND BUSINESS STRATEGIES**

Re-align — on a continuous basis — as the world keeps changing. A panel of global CIOs, led by Richard W. Swanborg, *President and Founder, ICEX*

■ **LEADERSHIP AND COMMUNICATIONS**

Get the results you want — from senior management, peers, and employees. Dr. Rick Brinkman, author, *Dealing with People You Can't Stand...*

■ **IT BUDGETS** Learn the tools and techniques successful IT executives use to set, sell and manage budgets. A panel of CIOs, led by Martha Heller, *Director, CIO's Best Practice Exchange*

■ **LEGAL LIABILITY** Know where you and your company are vulnerable — and what you can do about it.
Bruce P. Keller, *Partner, Debevoise & Plimpton*

PLUS A special update on security, the latest CIO Tech Poll results on IT spending, emerging technologies, the CIO/CFO relationship, and the best networking opportunities around!



Strategies for the New Reality

APRIL 14-16, 2002 ■ SHERATON BAL HARBOUR BEACH RESORT ■ BAL HARBOUR, FLORIDA

Powerful insights. Actionable ideas. Great network.

SUNDAY, APRIL 14

8:00 am – 1:30 pm

Golf Tournament

3:00 pm – 5:00 pm

Registration

6:00 pm – 8:00 pm

Welcome Reception

The perfect time to meet your peers, *CIO* editors, Corporate Hosts and special guests.

MONDAY, APRIL 15

7:30 am – 8:30 am

Breakfast & Registration

8:30 am – 8:45 am

Welcome & KnowPulse™ Poll

ABBIE LUNDBERG

Editor in Chief, *CIO* Magazine

8:45 am – 9:30 am

Opening Keynote: Is There Such a Thing as Too Much Security?

JONATHAN

ZITTRAIN,

Conference

Moderator

Executive Director,

The Berkman Center for Internet & Society, Harvard Law School

The push toward a more secure Internet has been revitalized by recent events. Just what forms will that security take? Implications reach far beyond combating viruses and denial of service attacks. Almost every way we use the Internet, especially for commerce, stands to evolve, as "security" and



"trust" become the touchstones of Internet development.

9:30 am – 10:15 am

CIO & CFO: Working Together for Better Results

NEIL HASTIE

CIO, TruServ

Corporation

The CIO and the CFO

are the two executives

whose domains stretch to every

corner of a company — as IT is

woven through every aspect of the

organization, and bottom-line con-

cerns exert greater influence on all

initiatives. Regardless of where

they sit on the organization chart,

the two will always have a unique

relationship — one inevitably col-

ored with tension. A CIO and CFO

look at the nature of the roles, and

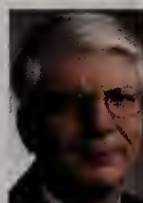
discuss how to strike the right bal-

ance between an appropriate

amount of tension and respect —

and why doing so will produce bet-

ter corporate results.



10:15 am – 11:00 am

Keeping Up with Emerging Technologies in Turbulent Times

CHARLES S.

BRENNER

Senior Vice President,

Fidelity Center for

Applied Technology

The hardest part of a CIO's job is

trying to keep up with emerging

technologies. In today's turbulent

economic times, companies also

need to decide whether or not to



invest in new technology develop-

ment. Fidelity Investments is one company that has continued to invest heavily in innovation. The company created FCAT, the Fidelity Center for Applied Technology, which investigates emerging technologies and tests new products and software that might someday become part of Fidelity's services.

Brenner explains why his company believes that an economic downturn is the ideal time to make investments in new technology: because by the time the markets rebound, it may be too late to develop the new technologies and services your customers demand before your competitors do. He also talks about some of the actual technology directions Fidelity is currently pursuing.

11:00 am – 11:30 am

Break

11:30 am – 12:15 pm

Business Briefings

Our Corporate Hosts present case studies, technology updates, and management practices.

12:15 pm – 1:45 pm

Working Lunch:

The Economy —

A Special Report

ROBERT J. SHILLER

Professor of

Economics,

Yale University



In his best-selling book, *Irrational Exuberance*, Shiller documented the combination of factors that drove stock markets to dizzying heights, and forecasted the dangers associated with that phenomenon. The dot.com bubble burst, the economy quickly slowed—and the events of September 11th continue to take a heavy toll psychologically and economically. Where do we go from here?

2:00 pm – 2:45 pm

Business Briefings

2:45 pm – 3:30 pm

Business Briefings

3:45 pm – 4:45 pm

CIO Panel: Rethinking IT and Business Strategies

Moderator: RICHARD

W. SWANBORG, JR.

President and Founder,

ICEX

Panelists:

JOHN GLASER

Vice President

and CIO,

Partners HealthCare

System, Inc.

JOHN GLOTZBACH

Executive Vice

President and CIO,

SBC Communi-

cations Inc.

How do you keep your

IT strategy relevant and

visible while your business under-

goes significant change? How do you

improve the speed for setting an IT



To enroll or for more information, call 800 366-0246, fax the form to 508 879-7720, or visit our website at www.cio.com/conferences

"Sharing knowledge is critical to survival. *CIO Perspectives* gives us the opportunity to share with and learn from the best."
-WATSON WYATT WORLDWIDE

"Great opportunity to spark new ideas beneficial to our IT organization and business."
-A.O. SMITH CORPORATION

"In two days I learned of several useful innovations; we'll implement the first one tomorrow."
-AUTOBYTEL, INC.

ng. It all adds up to the best ROI for you.

strategy and getting buy-in from all your stakeholders? Is there a better way to fund and quickly deploy a new strategic initiative while minimizing the risk of failure? Top CIOs share their views and experiences.

4:45 pm – 5:45 pm
Legal Liability: When You and Your Company Can Be Sued

BRUCE P. KELLER
Partner, Debevoise & Plimpton



To what extent are you and your company exposed based on how employees or third parties interact with your IT systems? Do you know what your systems are really hosting? A number of corporations recently discovered that their systems functioned as "super nodes" for the FastTrack file-swapping network. Keller examines how current concepts of organizational liability, privacy and intellectual property use in the marketplace affect corporations.

6:00 pm – 7:00 pm
Reception

The best place to get connected, exchange more good ideas and get practical advice.

TUESDAY, APRIL 16

7:30 am – 8:30 am
Breakfast & Informal Discussion Roundtables
Chat with *CIO* Magazine editors and your peers over coffee.

8:30 am – 8:45 am
Corporate IT Spending Trends — Where Are They Headed?

GARY BEACH
Group Publisher, CXO Media Inc.



CIO Magazine, in partnership with Ed Yardeni, chief investment strategist of Deutsche Banc Alex.Brown, surveys a panel of senior executives on current and future IT spending, as well as other issues. Beach presents an overview of the latest results and emerging trends from the *CIO Tech Poll*.

8:45 am – 9:45 am
New Tools, New Approaches to E-Crime: A US Secret Service Briefing

BOB WEAVER
Assistant Special Agent in Charge, US Secret Service, NY Electronic Crimes Task Force



The Task Force's approach is unique in law enforcement because of its focus on prevention, education and partnership with private industry, as much as its responsibilities for investigation and support of prosecution. Weaver, and Peter Cavicchia — one of the members of his New York team who is specially trained by the USSS to handle electronic crimes — provide specific practices and techniques used by the NY Electronic Crimes Task Force to combat electronic crimes,

including forensics techniques, technology tools, and approaches the Task Force takes that are mutually productive for business as well as law enforcement.

This session is produced in cooperation with the National Critical Infrastructure Assurance Office (CIAO) in the US Department of Commerce.

9:45 am – 10:45 am
Best Practice Exchange: Setting, Selling and Managing the IT Budget

Moderator: MARTHA HELLER
Director, Best Practice Exchange, *CIO* Magazine



CIOs who want to see their projects completed and their staff intact understand the importance of smart budget practices. This panel of CIOs, drawn from the *CIO* Best Practice Exchange, a private online network of senior IT executives, discusses the tools and techniques each uses to set, sell, and manage their IT budgets.

10:45 am – 11:15 am
Break

11:15 am – 12:00 pm
Business Briefings

12:00 pm – 12:45 pm
Business Briefings

1:00 pm – 2:30 pm
Networking Lunch

2:45 pm – 3:45 pm
Leadership and Communications

DR. RICK BRINKMAN
Author, *Dealing With People You Can't Stand...*



As CIOs gain more prominence within their organizations, they have more opportunities to interact with other senior executives, corporate officers and directors. Dr. Rick helps us understand the cause/effect of communications and get the results we want.

3:45 pm – 4:45 pm
Closing Keynote

4:45 pm – 5:15 pm
Summary/Conclusion
JONATHAN ZITTRAIN

6:00 pm – 7:00 pm
Keynote Reception

7:00 pm – 9:00 pm
CIO Dinner Party
Relax with friends old and new as *CIO* hosts a special dinner party overlooking the blue Atlantic.

Strategies for the New Reality



APRIL 14-16, 2002

SHERATON BAL HARBOUR BEACH RESORT
BAL HARBOUR, FLORIDA

- ☐ I won't be able to attend, but please keep me updated on future CIO events.

NAME

TITLE

COMPANY

ADDRESS

MAIL STOP

CITY, STATE, ZIP

PHONE

FAX

E-MAIL

COMPANY WEBSITE ADDRESS

NAME AS YOU WANT IT TO APPEAR ON YOUR BADGE

NAME OF MY COMPANION IF PARTICIPATING IN COMPANION PROGRAM

WHAT IS...

YOUR PRIMARY INDUSTRY?

YOUR ORGANIZATION'S ANNUAL REVENUES OR ASSETS?

YOUR ANNUAL IT BUDGET?

ENROLLMENT FEES

☐ IS Practitioner/Executive \$2,680

This fee applies if you are a CIO, IS executive or hold another executive position other than those listed below.

☐ Government/Military \$3,000

This fee includes your hotel for three nights. Do not make your hotel reservations, CIO will make them for you.

☐ Sales/Marketing/Consulting \$10,000

This fee applies if you hold a sales, marketing, business development or consulting position, including executive management of IT vendor and consulting companies. This enrollment fee is payable by company check only. CIO will make the final determination of this category.

☐ Companion Program \$375

Companions must be enrolled in this program to attend any conference-related functions. Includes all scheduled meals, receptions and entertainment, companion breakfast, and planned companion activities. Conference session attendance is not included.

If this is your first **CIO** event, your business card is required to process your registration.

4ROBF2

HOTEL ACCOMMODATIONS We urge you to make your reservations early by calling the hotel between 8am-5pm at 305 865-7511 and identifying yourself as part of the CIO conference to receive the conference rate. CIO will make hotel reservations for government/military participants only. Be sure to guarantee your room with a credit card, as all unreserved or unguaranteed rooms will be released on March 15, 2002. Hotel reservations, cancellations and charges are your responsibility. If a CIO conference Enrollment Form is not received within 48 hours of making your hotel reservation, your room will be released from the CIO room block.

ENROLLMENT FEES All enrollment fees must be paid in advance of the meeting. Fee includes conference sessions, business briefings, Corporate Host displays, conference materials and scheduled meals, receptions and entertainment. Transportation, hotel and recreation are your responsibility. Please note that submission of this enrollment form to CIO obligates the attendee/sender for the enrollment fee.

CANCELLATION All cancellations or substitutions must be made in writing. You may cancel your conference or companion enrollment up to March 15, 2002 without penalty. A \$350 administration fee will be imposed for cancellations between March 16-March 29, 2002. No refund or credit will be given for cancellations after March 29, 2002 or for no shows. You may send a substitute in your place. CIO reserves the right to decline enrollment to any registrant.

PAYMENT

- ☐ Check enclosed. Mail to: Executive Programs

CXO Media Inc., Box D3620
Boston, MA 02241-3620

- ☐ P.O. # _____ (A complete purchase order must be submitted within 10 business days.)

- ☐ MC ☐ Visa ☐ AmEx

ACCT. #

EXP.

SIGNATURE

- ☐ I am NOT staying at the Sheraton Bal Harbour Beach Resort.

NAME OF ALTERNATE HOTEL

To enroll or for more information, call 800 366-0246, fax back to 508 879-7720,
or visit our Website at www.cio.com/conferences

Voice in the Wilderness

Voice over IP sounds like a good idea until you ask—and answer—the hard questions

BY CHUCK PAPAGEORGIU

I WAS TRYING to figure out why I was getting annoyed at my CIO friend Mark while he was making a valiant effort to convince me that voice over IP (VoIP) was the way to go to the desktop. I could understand the technical merits of VoIP, but I was still not convinced. And then it dawned on me: The conversation reminded me of the embarrassing questions a general manager asked when considering uninterruptible power supply (UPS).

A few years ago I was present at a meeting where a sales team was trying to persuade a crusty general manager at a manufacturing plant to upgrade his backup power. The upgrade would support six hours of uninterrupted computer operations—an improvement over the two hours the plant currently had. The sales team went on extolling the technical virtues of their new UPS system and the cost benefits the plant would get from it, when the GM, after listening politely for about 15 minutes, started asking the following embarrassing questions.

GM: Tell me Jim [plant IT manager], how long does it take to properly wind down our data center after a power failure?

Jim: Oh, about 15 minutes; 45 if we want to run a backup before shutdown.



GM: Thanks. Do you guys [the sales team] know what happens to the plant when power is down for more than two hours?

Sales Team: Uhm...mm....

GM: If we have a power failure for more than two hours, we shut the plant down and send 99 percent of the people home. That's because it takes more than three hours to restart the production line after power comes back on, and that requires about five people and no computers other than the ones in the data center. Why do I need to spend almost a month's profit to keep my computers up and running while the plant is closed?

The sales team's answer? Silence.

Needless to say the sales team did not close the sale.

VoIP is one of those great technologies that people want to apply everywhere just because they can. And this brings me back to Mark. He was absolutely convinced that if he did not deploy VoIP to the desktop, his company would be at a

competitive disadvantage. We decided to spend some time asking and answering embarrassing questions before Mark went to the operating executives with his request.

Question: What is the impact of moving voice traffic on the internal network?

Answer: Since voice traffic has different characteristics than data traffic and the human ear has low tolerance for people sounding like Donald Duck, we agreed that quality of service

The cost of powering 2,500 VoIP phones for a year? Around \$65,000. The cost of powering telephone sets? Nothing.

(QoS) and priority for voice traffic is important. But when we attempted to understand QoS features touted by the VoIP vendors, we ended up with very few assurances that they would work in an internal network environment. Bottom line: We don't know.

Question: How would changes made to VoIP affect daily telecom operations?

Answer: Mark's company experiences a move, add and change (MAC) rate of 35 percent in its existing PBX phone system. (Each year, something is changed in 35 percent of the phones.) Half of the MAC activity is physically relocating station equipment or new construction. The rest is software-related, such as changing routing features, display names, call coverage, phone numbers and so on. The people managing the PBX have this down to a science. A user simply calls or sends e-mail to the help desk with her request. Right now, the service-level agreement calls for software changes within four hours and physical changes within 24 hours. Unfortunately, there are no procedures for handling MAC activity in a VoIP environment. Bottom line: We don't know.

Question: Once VoIP is implemented, what new devices will the users have on their desks?

Answer: The notion that a router and some data ports will provide the entire infrastructure required for VoIP to the desktop is simplistic at best. Until there is a universal workstation that can provide both voice and data capabilities and something that combines a PC and a telephone, we will need dual infrastructures. Users will continue to have both a computer workstation and a telephone workstation on their desks, whether regular or VoIP. Since we are not sure what the network impact will be, we will probably have two separate networks to support VoIP. In effect, we would have to replace the PBX infrastructure that is simple, in place and paid for, with VoIP cabling and hardware. Bottom line: We'll need two of everything.

Question: What's the total cost of ownership (TCO) for VoIP?

Answer: That is the CFO's favorite question. We found plenty of cost analysis models for the backbone network but very little information for the desktop. Even something as simple as electricity to power the phones was not included in any of the models we looked at. Using the conservative estimates of Paul Rodecki, a telephony industry consultant in Palm City, Fla., the cost of powering 2,500 VoIP phones for a year will be around \$65,000. Today's cost of powering telephone sets, with the exception of powering the PBX itself, is nothing. Another TCO issue that confuses many executives is long distance. Mark's cost for long-distance transport is less than 8 cents per minute and dropping. Since his company does not have a large private network connecting its locations, calls have to be

routed through a carrier's network. So implementing VoIP will not save him any money. Bottom line: We don't know, but the TCO for VoIP looks higher than that of today's phones.

Question: Are there any existing features in the current telephony environment that will be lost by going to a VoIP configuration?

Answer: Call-detail recording is the first thing that comes to mind. Mark's company has a strong cost accounting methodology for controlling telephony cost. How will call records be kept in a strictly VoIP environment?

Another major concern is the company's call center. Many industry analysts talk about the flexibility of using VoIP telephones in a call center environment, and I agree from a technical perspective. However, we could not find any applications to support call center integration to the CRM initiatives Mark's company recently initiated. Bottom line: We will lose some features that we currently use.

Question: Are there any existing corporate obligations that would make adoption of VoIP difficult?

Answer: Industry consultant Tom Brophy from NetPlus in Parsippany, N.J., points out that most corporations have long-term agreements with their long-distance carriers. That's the case with Mark's company. Bottom line: There are some contractual issues that we don't know how to resolve.

Clearly, there is too much we don't know about VoIP. Given all the unanswered questions, why deploy a new technology to replace an existing one as reliable and critical as the telephone? VoIP to the desktop just isn't ready for prime time. **CIO**

What do you think about VoIP? Let Opinion Editor Megan Santosus know at santosus@cio.com. Chuck Papageorgiou is president and CEO of Discrete Wireless, a wireless ASP based in Atlanta, and is the managing partner of Ideasphere, a high-tech consulting company based in Roswell, Ga.



You're invited to a free executive briefing with a Gartner expert about Windows® XP & Windows® 2000 migrations.

This free briefing with a senior Gartner analyst will address key issues facing IT executives, including:

- What are best practices for implementing enterprise-wide Windows migrations?
- What are the costs and benefits of migrating to Windows 2000 & Windows XP?
- How can organizations reduce total cost of ownership (TCO) for desktop and mobile PCs while enhancing quality of service for all of their users?

You'll also see how leading enterprises – such as The Home Depot, Staples, Citigroup, CMGI, and Pfizer – are leveraging ON Technology's infrastructure management solutions for unattended deployment of mission-critical operating systems, applications, and content, plus disaster recovery.

Get details and reserve your place now by visiting www.on.com/gartner, calling 800-326-7549, or sending an email to info@on.com.

“With ON Command CCM, The Home Depot is significantly reducing IT infrastructure costs while simultaneously providing superior customer service. ON's unique solution delivers superior enterprise scalability and reliability as well as comprehensive lifecycle management. We are also impressed by the system's open and flexible architecture, which allows us to easily integrate it with our existing infrastructure such as LDAP-based directory services.”

– **Michael E. Anderson**
*Vice-President of Information Systems,
The Home Depot*

The Home Depot has chosen ON Technology's software solution to remotely manage more than 150,000 Windows® 2000 workstations from centralized UNIX servers.

New York

Friday, January 25, 2002
Sheraton New York Hotel & Towers

Dallas

Wednesday, February 20, 2002
Hotel Inter-Continental Dallas

San Francisco

Thursday, February 21, 2002
San Francisco Airport Marriott

Washington, DC

Thursday, March 7, 2002
Ritz-Carlton, Washington, DC

Boston

Thursday, March 28, 2002
Newton Marriott



ON Technology Corporation

Waltham Woods, 880 Winter Street, Building 4, Waltham, MA 02451-1449, USA

Tel: 800-326-7549 • E-mail: info@on.com • Fax: 781-487-3301 • Web: www.on.com

ON Technology, ON Command, and ON Command CCM are registered trademarks, and the ON logo is a trademark, of ON Technology Corporation.
Microsoft, Windows, and the Windows logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
All other marks are marks of their respective companies.

Opinion Re:

An Imperfect Cybercrime Treaty
IT Politics

An Imperfect Cybercrime Treaty

BY BILL WALL

THE AMBIGUOUS NATURE of the Internet has historically proved frustrating for companies when it comes to hackers. Since there are no international regulations governing cybercrime, hackers have gotten away with billions of dollars in damage. Now with a new treaty in Europe, governments are finally cooperating to regulate cyberspace. Still, companies looking for straightforward regulations may have to wait a bit longer. Despite the international cooperation, the treaty still raises concerns.

The characteristics that make the Internet so productive for conducting business also make it susceptible to criminal activity. As transactions across borders have become easier, so have crimes. For example, a hacker in the Philippines can access an intranet in France to find competitive information about a business in Brazil. Such competitive proprietary information can be used for illicit purposes including insider stock trading. The hacker might also post the confidential information on the Internet, forcing the Brazilian company to modify an expensive product-marketing campaign. Since there are no international cybercrime treaties currently in place, this hacker cannot be prosecuted by the victimized company.



Last May, the Council of Europe, working with Canada, Japan, South Africa and the United States, approved the 27th draft of the Convention on Cybercrime, the first international treaty on crime in cyberspace. In progress since 1997, the treaty will now be sent to the Council's Committee of Ministers for ratification, and then it must be accepted by each country individually, a process that will likely take one to two years.

When the treaty is enacted, participating countries will be required to create laws that coincide with the regulations in the treaty regarding issues such as network attacks, digital copyrights, child pornography, computer-related fraud and viruses. The treaty will also allow one country to obtain information such as e-mail logs and hard drive contents from a hacker in another country, possibly leading to the arrest and extradition of the hacker. Police and security officials have been

ILLUSTRATION BY STEVEN DANA



When Yahoo!
wanted to
empower busiNesses,
they chose Novell.

How does Yahoo!® Enterprise Solutions make portal products shine? Yahoo! puts the power of Novell® eDirectory™ in its enterprise portal solution. With it, your customers, employees, partners and suppliers can securely access the information they need from any Web-enabled device. And your intranets, extranets and the Internet can work as one Net. The result? More productive employees and lasting relationships with partners and customers. All while leveraging existing IT resources to increase your ROI. To learn more about how Novell can empower your business, visit www.novell.com

Novell.
the power to chaNge™

struggling to fight cybercrime, and this treaty is designed to help them by enabling global cooperation.

However, by allowing police access to a hacker's computer records, the Council of Europe has set off alarms about privacy, free speech and e-commerce. Internet service providers worry about costs incurred by having to essentially start keeping electronic paper trails on anyone who might be under suspicion. Civil liberties groups think the treaty would sacrifice privacy by allowing investigators to track computer information about citizens. Another concern revolves around the extent of cooperation between countries, as some nations have laws prohibiting certain actions that are legal in others. For example, if hate language is illegal in France, should the French police be able to request information about and prosecute the owners of a Nazi website based in the United States?

Other critics contend that law enforcement officials could interpret the

wording of the treaty in a manner that would criminalize some standard techniques that vendors use to test the security of a computer. For example, exploit code, a tool used by security experts to test the integrity of systems, could come into question. Authors of the accord counter that their insertion of the term *criminal intent* will prevent that problem from occurring.

If nothing else, the treaty has been effective in bringing forth issues about international crime fighting. And with the growth of globalization and the Internet, there is a new set of controversial issues looming just off the horizon. While this treaty has its critics, it's an improvement over what has come before it. At the moment, the treaty offers

businesses the best hope for legal recourse should they become the victim of cybercrime. ■

Bill Wall is the chief security engineer for the Harris Corp., a communications equipment company based in Melbourne, Fla.

CIO.COM

Should governments regulate cyberspace? You tell us. Go to the **CIO READER POLL** at www.cio.com.

IT Politics

BY JIM PREBIL AND TOM COLBERT

WITH I.T. REACHING every part of a company, IT implementations need collaborative work teams. These teams must consider the political nature of an organization and the influence employees, business partners, shareholders and even customers wield on the outcome of IT projects. Without a collaborative perspective, IT may find disgruntled employees standing in the way of a project's success. As a result, CIOs will spend their valuable time dealing with the politics of execution. With some advanced planning, these politics—and the time spent to deal with them—can be minimized.

When establishing a collaborative work team, the involvement of every stakeholder is an absolute necessity. A collaborative work team can develop strategies that underscore the multifaceted and complex nature of stakeholder needs by analyzing an organization's fitness landscape, a process that looks at an organization's ability to adapt to change.

To evaluate an organization's fitness landscape, team members need to look at the relationships and the value that each stakeholder brings to a project. Stakeholders typically include employees, project partners, customers, shareholders, vendors, partner companies and executives.

The first phase in evaluating the fitness landscape involves reviewing the business plan, assessing company culture, identifying the work groups affected by a technology implementation and interviewing representatives of a project's identified stakeholder groups. The second phase is a workshop assessment with stakeholders to explore their needs and roles. If the workshop is conducted with honesty, constructive working relationships among stakeholders will emerge.

While some CIOs may not be comfortable with the reflective nature of this exercise, it's much easier to develop a comprehensive implementation strategy that delivers value for each stakeholder group after evaluating an organization's fitness landscape. As the implementation begins, the work team can use the information gained in the planning process to defuse political situations and map a smoother path to completion.

Evaluating the fitness landscape will bring the right people together to complete the job and ensure its acceptance among employees. It doesn't cost a lot of money or time to consider the people factor in an implementation process, and the payoffs can be enormous: reduced turnover, increased productivity, improved morale, optimized technology and a culture that is able to manage change positively. **CIO**

Send your opinions to Megan Santosus at santosus@cio.com.

Jim Prebil is managing director of e-business, and Tom Colbert is a consultant at Born, an e-business consultancy based in Minnetonka, Minn.

Get the low-down from the higher-ups.

Learn why enterprise storage management
is more than "backing up" data.

FREE
on-demand
webcast
available
now!



IT webcast
A service of ITworld.com and CXO Media

Lower Your Cost of Ownership with Integrated Storage Software Solutions

Current Speed: 100% Current Player: Windows Media

View Transcript View Agenda Change Player Speed

Sponsored by: **VERITAS**

Discussion Topics

- The new role of enterprise storage and why you need to manage its availability, capacity, performance and the infrastructure around your network storage
- Why investing more money in hardware may not be the answer to your problems
- Next generation storage software solutions that protect your critical data, as well as reduce risk, complexity and total cost of ownership
- Strategies and Best Practices for maximizing storage management ROI

Douglas Roseborough
Senior Vice President of Marketing
VERITAS

Raymond Paquet
Vice President and Research Director
Gartner Research

Bill Laberis
Founder and President
Bill Laberis Associates

Tune in now and discover how the next generation in storage software solutions
is leading the way to a more efficient and cost effective storage future.

www.itworld.com/jwc/cio/veritas_storage

Sponsored by

VERITAS

Produced by

IT world.com



CXO MEDIA INC



The Magazine for Information Executives

CIO SALES OFFICES

President & CEO Joseph L. Levy • 508 935-4601

Publisher Gary J. Beach • 508 935-4202

Executive VP Sales/Custom Publishing
Ellen Romanow • 508 935-4796

Sales Operations Associate Kim Harris

East Coast

Senior VP Sales/East

Michael J. Masters • 973 244-4024

Senior Regional Mgrs./Advertising Sales

Eileen P. Lobaugh • 973 244-4040

Kathy Powers • 973 244-4041

Regional Sales Manager

Ellie Schwab • 973 244-4042

Account Executives

Joan Bonadeo • 973 244-4043

Sharon Kurcin • 973 244-4032

Gale Tedeschi • 973 244-4031

Office Mgr. Marlene Levis • 973 244-4033

Sales Asst. Lin Viggiano • 973 244-4035

Administrative Assistant

Sharon Harrison • 973 244-4037

New England

Senior Regional Manager/Advertising Sales

Len Ganz • 508 935-4039

Senior Advertising Sales Associate

Dawn Cora • 508 935-4092, Fax 508 879-6063

Advertising Sales Associate

Nancy Vescere • 508 988-7547

Mid-Atlantic

Senior Regional Manager/Advertising Sales

Louise Cupelli • 215 627-8114

Advertising Sales Associate

Maureen Welsh • 215 627-8114

South Central

Regional Director/Advertising Sales

Robert E. Sawdon • 512 306-9801, Fax 512 306-9805

Account Executive

Kevin T. Rutan • 512 306-9801, Fax 512 306-9805

Advertising Sales Associate

Brenda Garza • 512 306-9801, Fax 512 306-9805

North Central

Senior Regional Manager/Advertising Sales

Keith H. Kenner • 847 441-5005, Fax 847 441-5150

Account Executive

Beth Carlson • 847 441-3140

Advertising Sales Associate

Kim Giovanni • 847 441-5005

West Coast

VP Sales/West Cheri McKeithan • 415 975-2685

Senior Regional Manager/Advertising Sales

James Barrett • 415 975-2680

Regional Manager/Advertising Sales

Ai Collins • 415 975-2686

District Manager

Kristin Nystrom • 415 975-2687

Account Executives

Jeff Odell • 415 975-2682

Sarajane Robinson-Retondo • 415 975-2693

Office Manager/Sales Associate

Brett McWilliams • 415 975-2670

Senior Advertising Sales Associate

Derek Jung • 415 975-2683

Advertising Sales Associates

Chris DaRosa • 415 975-2688

Anna Limon • 415 975-2694

Southern California

Regional Sales Manager Chris Hempel •

949 475-5579, Fax 949 475-5583

Account Executive Chris Bramel • 949 475-5579,

Fax 949 475-5583

Sales Associate Isaac Ugay • 949 475-5579,

Fax 949 475-5583

NEW BUSINESS DEVELOPMENT

VP, Business Development & Strategic Alliances

Cheryl M. Hardy • 202 625-8342

Coordinator, Business Development

Kelly Gabe • 202 625-8343

LIST SERVICES

List Services Director

Kathryn A.W. Marston • 508 935-4072

CIO is published in the United States as well as in:

Australia, CIO Australia

P.O. Box 295, St. Leonards, NSW 2065, Australia
61-2-9439-5133; www.idg.com.au

Canada, CIO Canada (monthly)

CIO Enterprise Canada (biweekly)

Laurentian Technomedia Inc., 55 Town Centre Ct.
Suite 302, Scarborough, M1P 4X4, Ontario, Canada
416-290-0240; www.lti.on.ca/cio

China, CEO & CIO China

China Computerworld Publishing

Building 3, 4th Floor

16 Cuiweizhongli, Wanshou Rd.

Beijing 10036, China

8610-6825-9416; www.ceocio.com.cn

India, CIO India

Technology Media Group Pvt. Ltd.

3540 HAL 2nd Stage

Indiranagar, Bangalore, India 560 038

91-80-521-0309/12

Japan, CIO Japan

3-4-5 Hongo Bunkyo-ku

Tokyo 113-0033 Japan

03-5800-2931; www.idg.co.jp

Korea, CIO Korea

39, Dangsang-Dong 1-Ga, Youngdeungpo-Gu

Seoul 150-041 Korea

82-2-632-7561; www.cio.seoul.kr

New Zealand, CIO New Zealand

P.O. Box 6813, Wellesley St.

Auckland 1036 New Zealand

64-9-377-9902; www.idg.co.nz

Singapore, CIO ACEN/Hong-Kong

IDG Communications (s) Pte Ltd.

80 Marine Parade Road, #17-01A Parkway Parade

Singapore 449269

65-345-8383; www.idg.com.sg

List Services Account Executive

Stephanie Roy • 508 935-4151

List Services Coordinator

Kim Cormican • 508 935-4152

List Services Billing Assistant

Rebecca Monto • 508 935-7835

ONLINE SERVICES

VP/Online Sales Lisa Brown • 508 935-4470

Online Sales Mgr. Michael McPhee • 508 935-4611

Online Account Exec. James Buckley • 508 988-6823

CUSTOM PUBLISHING

Group Director Michael Siggins

Director Mary Gregory

Project Managers Lisa Chaffin (Senior), Sally Ellison

Graphic Designer Chris Brown

REPRINT SERVICES

651 582-3834, E-mail kastickney@reprintservices.com

For further sales information, visit

www.cio.com/marketing/salesoffices.html.

IDG is the world's leading technology media, research and event company. Founded in 1964, IDG had 2000 revenues of \$3.1 billion and has more than 12,000 employees worldwide. IDG offers the widest range of media options that reach more than 100 million technology buyers in 85 countries representing 95 percent of worldwide IT spending. IDG's diverse product and services portfolio spans six key areas, including print publishing, online publishing, events and conferences, market research, education and training and global marketing services. More than 100 million people read one or more of IDG's 300 magazines and newspapers in 85 countries each month. IDG's five global publication product lines—*Computerworld/InfoWorld*, *CIO*, *Macworld*, *Network World* and *PC World*—account for more than 175 of these titles, delivering a consistent audience of buyers throughout the world. IDG's online network includes 300 websites in 70 countries, reaching more technology buyers with the broadest network of technology content online. Supported by more than 2,000 journalists, IDG's websites provide focused, useful content that meets the needs of distinct communities around the world. IDG's online network is also supported by the world's only 24-hour global technology news organization, the IDG News Service, reporting the latest technology news and analysis in multiple languages around the world. International Data Corp. (IDC) is the world's leading provider of IT data, analysis and consulting. With research centers in 43 countries and more than 575 research analysts worldwide, IDC is uniquely positioned to provide a global perspective on the IT market. IDG is the leading producer of more than 168 globally branded conferences and events in 35 countries. Industry-leading international event series include LinuxWorld Conference & Expo, Macworld Conference & Expo, and ComNet. IDG Global Solutions helps the industry's leading IT companies build international brand recognition by developing globally integrated marketing programs via IDG's print, online and event products. IDG's diverse portfolio of global partnership services includes customized research and publishing, targeted conferences and seminars, and direct response tools. For more information, visit www.idg.com.

**"I know
about your
sophisticated
software.**

**Now talk to me
about how it
benefits
my business."**

From **Data** to **Insight** to **Action** with MicroStrategy

- Get answers to critical questions for smarter business decisions
- Empower your users by letting them create their own reports in real time
- Get information to the people who need it most
- Anywhere, anytime via web, email, Excel™, and wireless
- Powerful and accessible analysis for all users
- Insight for every industry and function

■ Reporting ■ Analysis ■ Information Delivery



MicroStrategy was chosen as
PC Magazine Editors' Choice,
August 2001

**See for
yourself.**



Order a **FREE** fully-functional
Eval CD today

www.microstrategy.com/cio
Call 1-866-866-MSTR (6787)

MicroStrategy®
Best In Business Intelligence™

Index of Companies and Advertisers

Page numbers refer to the first page of the article(s) in which the company is mentioned. This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

Company Index

@Stake Inc.	42
Aberdeen Group Inc.	84
Acme	26
AirlQ	26
Banner Health System	84
Barton Malow Co.	42
BEA Systems Inc.	76
Biscom Inc.	26
Builder Group, The	68
CareGroup Health Care System	60
Carlson Cos.	60
Citibank	68
Clearwire	84
Computer Sciences Corp.	42
Corporate Consulting Services Ltd.	54
Counterpane Internet Security Inc.	42
Dell Computer Corp.	26, 36
EBay Inc.	26
EDiets.com Inc.	76
E-Loan Inc.	26
EMarketer	26
Empire Blue Cross and Blue Shield	54
Epiphany Inc.	76
Everest Broadband Networks	84
Farpoint Group	84
FileMaker Inc.	84
Firepond Inc.	54
Fisher Communications Inc.	84
Fountainhead International LLC	84
Frost & Sullivan Inc.	26
Gartner	60, 84
Georgia Technology Authority	68
IBM Corp.	76
IDC	84
Information Builders	60
Institutional Venture Partners	76
Jupiter Media Metrix	26, 76
London Chamber of Commerce	26
McConnell International LLC	26
Meta Group Inc.	84
Nestlé S.A.	68
Net+ Inc.	99
OppenheimerFunds Distributor Inc.	42
Option One Inc.	60
Oracle Corp.	76
PacifiCare Health Systems	42
PricewaterhouseCoopers	26
Primarion Inc.	84
PSS World Medical Inc.	76
Redpoint Ventures	76
Reflect.com LLC	76

Riptech	26
RSA Security Inc.	42
Schlumberger Ltd.	68
Standish Group	26
State Street Global Advisors	42
Steptoe & Johnson LLP	26
The Procter & Gamble Co.	76
Thompson Publishing Group Inc.	68
United Maintenance	60
Vastera Inc.	84
Veridian Corp.	68
WebMethods Inc.	42
Xporta Inc.	84
Zurich North America	42

Advertiser Index

Acxiom Corp.	35
AppGate	31
AT&T	47
Avaya	33
BMC Software	63
Brother International Corp.	87
Canon	89
Cognos Inc.	49
Computer Associates Intl. Inc.	C4, 7
Covalent Technologies	85
Crystal Decisions	65, 67
CXO Media Inc.	39, 71, 95
DataMirror Corp.	53
Digex	27
Fujitsu	C2
Harris STAT	81
IBM Corp.	41
Intel Corp.	79
Lawson Software	4
Loudcloud Inc.	12
Maxtor Corp.	C3
Michigan Economic Development Corp.	91
Microsoft Corp.	2, 22
MicroStrategy	107
Networld + Interop	109
Novell	103
NTT Communications	19
On Technology Corp.	51, 101
Oracle	15
Princeton Softech	73
Red Hat/Compaq	45
Research in Motion/Blackberry	16
RSA Security Inc.	59
salesforce.com	25
Siemens Corp.	21
Sun Microsystems Inc.	11
Sungard Recovery Services	8
Symantec	57
Syngy	29
Veritas	83
Veritas/ITworld	105
webMethods	93
WorldCom	75

Editorial, Advertising and Business Offices:

492 Old Connecticut Path, P.O. Box 9208,
Framingham, Massachusetts 01701-9208,
508 872-0080.

CIO (ISSN 0894-9301) is published
semimonthly and as a combined issue
December 15/January 1 by CXO Media Inc.,
492 Old Connecticut Path, P.O. Box 9208,
Framingham, MA 01701-9208. Periodicals
postage paid at Framingham, MA, and at
additional mailing offices. Canada
Publications Mail Agreement Number
1902075. CANADIAN POSTMASTER:
Please return undeliverable copy to P.O.
Box 1632, Windsor, ON N9A 7C9.

Permissions: Copyright 2001 by CXO Media
Inc. All rights reserved. Reproduction of
material appearing in *CIO* is forbidden
without written permission. Send all
requests to Permissions Department, *CIO*,
492 Old Connecticut Path, P.O. Box 9208,
Framingham, Massachusetts 01701-9208.

Photocopy Rights: Permission to photocopy
for internal or personal use or the internal
or personal use of specific clients is granted
by *CIO* for users through the Copyright
Clearance Center, provided that the base fee
of \$3 per copy of the article, plus \$.50 per
page is paid directly to Copyright Clearance
Center, 27 Congress Street, Salem,
Massachusetts 01970. Please specify: ISSN
0894-9301. Permission to photocopy does
not extend to contributed articles followed
by this symbol: ‡.

Subscriptions: Address inquiries to *CIO*,
492 Old Connecticut Path, P.O. Box 9208,
Framingham, Massachusetts 01701-9208;
800 788-4605. *CIO* is free to qualified infor-
mation executives. To all others the one-year
basic rate is \$94 for the United States and
Canada, \$175 to foreign countries (payable
in U.S. funds only). The single copy price
is \$9. Please allow four to six weeks for new
subscriptions to begin.

Change of Address: Please fax a copy of
current subscription label along with new
address to 508 879-7899. Allow four to six
weeks for change to take effect.

Postmaster: Send change of address to *CIO*,
P.O. Box 489, Northbrook, Illinois 60065-
9816. Printed in the U.S.A.



PRESENTS

NETWORLDSM + INTEROP[®]

VEGAS

CONFERENCE: May 5-10, 2002

EXHIBITION: May 7-9, 2002

LAS VEGAS CONVENTION CENTER

Give Us One Week.

Join information technology leaders from top companies at NetWorld+Interop 2002 Las Vegas.

Meet face-to-face with visionaries and vendors.

Discover strategies to maximize the potential of technologies today and tomorrow.

Hear from keynotes:

John Chambers
President and CEO
Cisco Systems, Inc.

Serge Tchuruk
Chairman and CEO
Alcatel

Register today.
It'll be time well spent.

**We'll Give
You the Future.**

Putting Innovation to Work

The World's Premier
Networking Event



Register online at www.interop.com

or call 888-886-4057; international, 781-433-1516.

Interested in exhibiting at NetWorld+Interop? Please call our sales department at 800-776-6676 ext. 7927; or international, 650-372-7927.

OFFICIAL CORPORATE
SPONSORS OF
KEY3MEDIA GROUP



Official Card of NetWorld+Interop



Mercedes-Benz

Official Automotive Sponsor



NYSE

New York Stock Exchange



Digital Island

a Cable & Wireless company

The Official Web
Services Provider
for Key3Media

Coupon Code: 334

Use Priority Code
CCMG
when registering.



YOU'RE PROTECTED AGAINST HACKERS, VIRUSES AND WORMS.
BUT WHAT ABOUT ROSE IN BENEFITS?

eTrust™ Security Solutions

Complete protection for your entire enterprise.

When it comes to protecting your business, you need security that can protect your enterprise from potential threats, no matter where they may come from. That's exactly what eTrust does. Our family of products allows you to not only safeguard your entire enterprise, but also view and manage that security either centrally or from multiple delegated locations. So you can continue to grow and maximize new opportunities while minimizing your risk. And that's security you can feel secure about.



Computer Associates™